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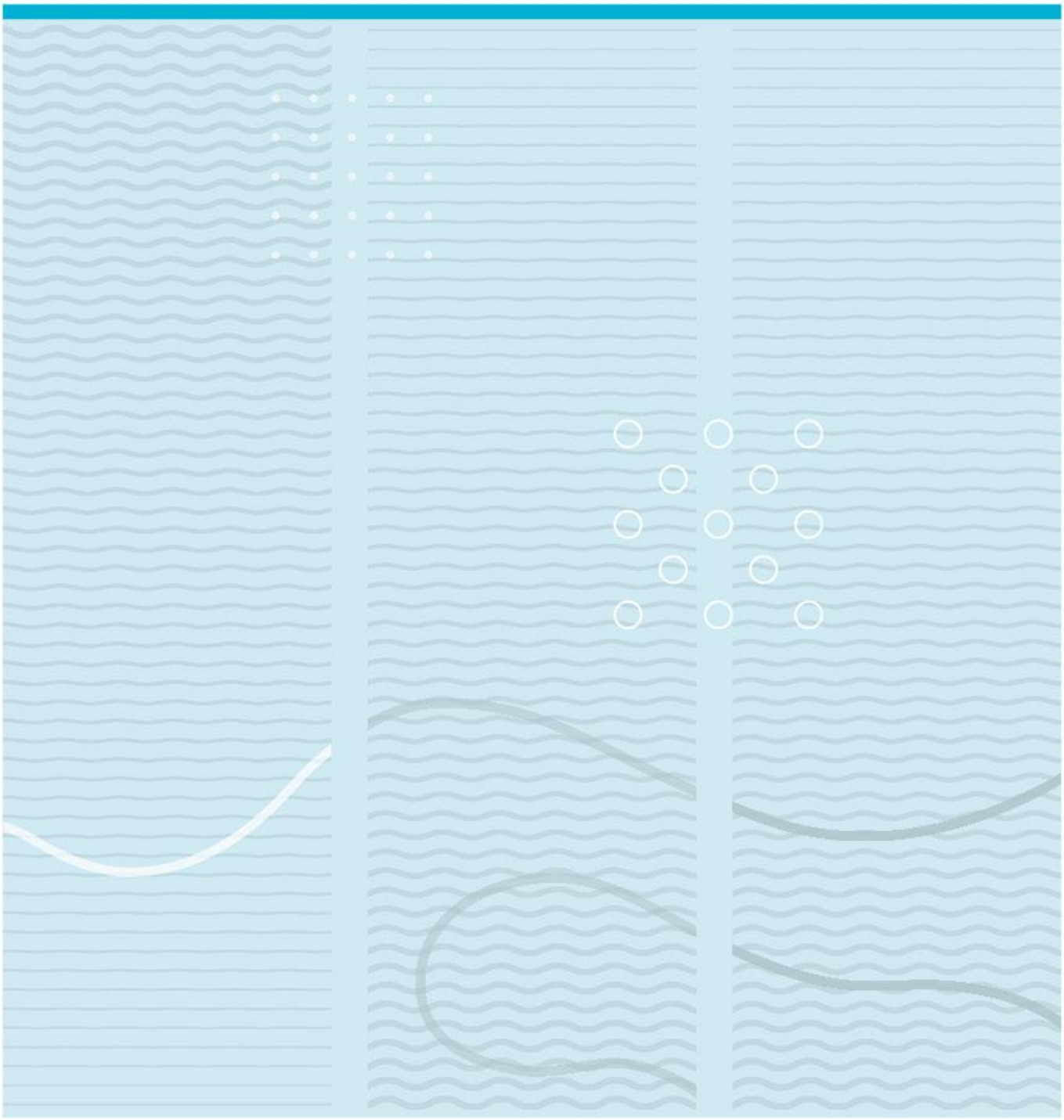
"Care for nature doesn't just happen"

Perspectives on care for nature in Norwegian teacher education



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This thesis is worth 30 study points

Abstract

This master thesis explores how teacher educators with a background in nature- and friluftsliv-based education work to nurture care for nature in Norwegian programs. It responds to previous research pointing to the important role of teacher education and care for nature in developing educational practices that are responsive to the prevailing eco-social challenges of our time. Furthermore, it addresses the successful realisation of fundamental values in Norwegian education as put forth by the Norwegian Directorate for Education and Training in its current core curricula for kindergarten and school education. This qualitative study employs an integrated pragmatic approach that includes semi-structured interviews and the analysis of selected curriculum sections. Findings reveal different conceptualisations of care for nature on a spectrum between anthropocentric and relational perspectives. Furthermore, the teacher educators appraise local, slow and low-impact approaches to friluftsliv and nature experience as helpful to nurturing care for nature in teacher candidates. Lack of time can be identified as the most challenging, while cooperation and involvement of colleagues, teacher candidates and community members are experienced as rising the most opportunities. Additionally, the teacher educators display different strategies to creatively work within their frameworks and find 'interstices' to nurture care for nature. These findings imply that friluftsliv and nature-based approaches hold the potential to nurture care for nature in teacher education that should be explored through other perspectives including the multitude of subject disciplines, indigenous Sami culture and other minorities that have a share in teacher education.

Contents

Foreword

This work is an ode to the teachers in our lives:
Family members and friends that are there for us every step of the way,
strangers that cross our paths, sometimes only for the blink of an eye,
educators that guide and support us,
Nature and the more-than-human world that speak to us in different tongues.

~❋~

I want to thank:

… the collaborating teacher educators for sharing their time and thoughts, for doing important work without always being recognised for it, for being interested in my research and open to my questions.

… the NOFRI teachers for welcoming me to this incredible program, sharing their work, giving directions, and engaging with us students more so than lecturing us.

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Bø in Telemark, Norway / May 13, 2022
Birthe Silvie-Mareen Daber

1 Introduction

Industrialization, urbanization, wasteful energy consumption and unsustainable lifestyles have contributed to a range of pressing global challenges. This includes, but is not limited to, public health issues, such as those we currently experience in the global COVID-19 pandemic, biodiversity loss and climate and environmental change. Researchers find that these phenomena are, in part, influenced by a culturally constructed disconnection between humans and nature in the era known as the Anthropocene (van den Bosch et al., 2018). Much effort has been put into understanding these issues as well as the development of sustainable solutions and technologies. Yet, we currently find ourselves in a paradoxical time between effort and denial. For instance, politicians call for climate protection and more motorways in one and the same sentence (Gurholt & Haukeland, 2019; Kopatz, 2016). Ecological behaviour is not only linked to knowledge and technological innovation but it is defined by our relationship with the natural world (Whitburn et al., 2020). In this context, Scandinavian approaches to outdoor life, also referred to as friluftsliv, are gaining popularity both nationally as well as internationally as a way to reconnect humans with nature (Hesla, 2020; National Geographic, 2020). According to Gurholt and Haukeland (2019) "friluftsliv is actually literally translated as 'free-air-life', but conceptually friluftsliv may be translated with the compounds of 'outdoor' and 'life/living' as recreation, pursuits, adventures, and is used in an educational context similar to that of outdoor, environmental, and/or eco-philosophical education" (p. 178). Nevertheless, the academic discourse around this cultural phenomenon suggests that current friluftsliv practices are infused by the paradoxes of our everyday life as well, uncovering the concept's infusion with contradictory claims of sustainability, instrumentalisation and identity (Gurholt & Broch, 2017; Gurholt & Haukeland, 2019; Langseth, 2012).

Researchers call for better support for environmentally grounded policies and education in the pursuit of inducing new habits and ways of life that are responsive to the eco-social issues of our time (Aikens, 2021; Jickling & Blenkinsop, 2020; Kopatz, 2016). Looking at friluftsliv and outdoor education in particular, an important research focus lies on teacher education (Aikens, 2021; Jickling & Blenkinsop, 2020; Mikaels, 2019; Winks & Warwick, 2021). An important aspect of this research is the notion of respect or care for nature. With the desire of contributing to the agenda of a timely development in education, my research project is concerned with how teacher educators nurture care for nature in teacher candidates in Norwegian teacher education for kindergarten and school. The study combines semi-structured interviews with an ecopedagogical approach to presenting and analysing the findings, and furthermore, it contextualises the findings with Nordic contributions from Sweden, Norway and Iceland. The following sections of this introduction outline my personal motivation and position as professional educator in relation to the eco-social challenges mentioned above. Moreover, I present my approach to integrating and realising my research interest on the topic of nurturing care for nature in teacher education. Finally, I give more detailed information on the structure of this thesis.

1.1 Motivation

Nature and outdoor life have always been a part of me and my upbringing. Over the years they have become a part of my professional career as well. My personal relationship with nature and outdoor life is deeply influenced by family time spent in Sweden, an exchange year in Norway, many years of kayaking, skiing, hiking and camping in the mountains, and my professional journey as an educator. With this thesis, I am completing a master's degree in Nordic outdoor life at the University of South-Eastern Norway and building on a teacher education followed by six years of experience teaching English, Geography and physical education in German high schools. In addition, I have professional experience in guiding and outdoor activities as a ski and kayak instructor. Over the years, it has become my priority to help others develop their individual potential and to live their lives as responsible society members for a sustainable future. To fulfil these aspirations, it is important to help others develop personal values and knowledge about their individuality and identity, maintain physical and mental health, support social and economic participation and ensure the persistence of our natural resources as a basis for life. My practice as a student, teacher and guide is aimed at making a meaningful contribution to this. Through my experiences and professional background, I find that nature has intrinsic value independent of the use-value it has for us humans, but I do also see the potentials it holds in tending to the eco-social issues referred to above. Hence, I value working with and in nature, and outdoor education, and I am very motivated to contribute to nature-based projects in theory and practice. However, I know that it is not always easy to realise these ambitions, particularly from within the public school system. I observed many contradictions, for instance, that the school system calls for more nature-connection in the curricula and teaching, while denying relevant holistic experiences of, with and in nature by largely confining lessons to unsustainable and theory focused indoor settings. I took a break from teaching in Germany to embark on this master's programme and find out how outdoor learning can be facilitated to foster more care for nature and sustainable living and thus enable a practice that is more in line with what we teach. This has led me on a two-year quest for answers, the fruits of which I present as findings in this thesis.

1.2 Research question and purpose

In response to the implications and limitations of current research regarding care for nature and the need for development in teacher education (see chapter 2), this master thesis project sets out to explore how teacher educators working with nature and friluftsliv approach care for nature in their programs. My research picks up on the research gap concerning the teacher educator perspective in this context. I attempt to broaden the field of Haukeland and Lund-Kristensen's research (2019), by including perspectives from both kindergarten and school teacher education (see chapter 4.2). The issue of care as a connecting factor between humans and nature is embedded in my research by contextualising this objective in the new Norwegian core curricula for kindergarten and school education, both of which contain the value "care for nature" (Norwegian Directorate for Education and Training, 2017a, p. 10, 2017b, p. 22; see chapter 4.3.1). The issue of imagination is addressed by including a focus on understandings and approaches to friluftsliv.

Based on these elaborations, my research is guided by the following questions:

1) How do teacher educators understand and use nature (friluftsliv) in their work to nurture care for nature in teacher candidates?
2) Which factors in teacher education support and hinder nurturing care for nature in teacher candidates?

In exploring these research questions, I intend to identify opportunities for nurturing care for nature in teacher candidates through friluftsliv and nature-based approaches. I aim at describing and understanding instances specific to Norwegian teacher educator perspectives, that can hopefully serve as an example and inspiration in other contexts. In resonance with the research outlined in chapter 2, and the wild pedagogies movement in particular, my research intends to contribute to cultural change for a sustainable way of life through education (Jickling et al., 2018). In the Norwegian context, this addresses the facilitation of care for nature as a follow-up of the core values in the new curricula for kindergarten and school teacher education.

1.3 Thesis and research structure

This work is structured by the working principles of Haukeland and Lund-Kristensen's (2019) ecopedagogical approach, which they call "the SPIRE model" (p. 51). This chapter introduces and gives an overview of the research topic, my personal position, the research question and purpose and the thesis structure. In chapter two, I give an overview of works addressing the topic of nurturing care for nature in teacher education. I narrow down the problem area and delineate my research interest by taking a closer look at the implications and limitations of previous research on the following topics: Friluftsliv cultures and education, care for nature and the human-nature relationship, teacher education and development. In chapter three, I present a conceptual framework that is rooted in pragmatism and integrates an ecopedagogical and an interpretative approach to describe and understand perspectives on nurturing care for nature in teacher education. In chapter four, I lay out my research method by giving insights into the overall research design, the target group, strategies for data collection and analysis as well as reflections on limitations, ensuring research quality and ethical considerations. Chapter five presents my findings as organised by the SPIRE model and themes emerging from within this frame. An overview of these themes in provided in table 2 below. Chapter six is structured in two parts: The first section discusses my findings within the conceptual framework of the SPIRE model, while the second one contextualises the main findings within the presented body of literature. In a concluding chapter, I restate the main premises of this research, summarise my findings, answer my research questions and make recommendations for future research.

Table 1. Overview of the findings structure

Chapter & coding	Theme
5.1	SITUATION
5.1.1	Institutional framework
5.1.2	Human resources: values and competence
5.1.3	Resonance, acknowledgement, and cooperation
5.1.4	Human-nature relationship
5.1.5	Natural and human-made resources

5.2	POSITION
5.2.1	Values
a)	Educational
b)	Socio-cultural
c)	Recreational
d)	Intrinsic
5.2.2	Visions
e)	Engagement with nature
f)	Community involvement
g)	Teacher candidate involvement
h)	Multi- and interdisciplinarity

5.3	INTEGRATION
5.3.1	Contents
5.3.2	Competencies
5.3.3	Pedagogy
5.3.4	Institution
5.3.5	Nature

5.4	REALISATION
5.4.1	Contents
5.4.2	Competencies
5.4.3	Pedagogy
5.4.4	Institution
5.4.5	Nature

5.5	EVALUTAION
5.5.1	Process evaluation
5.5.2	Product evaluation

Note. The coding process is laid out further in chapter 4.4.2.

2 Field of research

This chapter gives an overview of current research addressing the role of friluftsliv, care for nature, as well as teacher education and development in transforming education for eco-social change. It is structured in three parts that focus on relevant works within a Scandinavian perspective while considering contributions from the wider Nordic and international contexts. Furthermore, I deduce limitations of previous publications and implications for further research that delineate my research focus (see chapter1.2).

2.1 Friluftsliv cultures and education

Friluftsliv – cultures and paradoxes. In the search for sustainable ways of being in the world, the Scandinavian concept of friluftsliv, as mentioned above, is gaining popularity (Hesla, 2020; National Geographic, 2020). Current research in the field, however, reveals a discourse on the human-nature relationship between claims of sustainability, utilisation, and identity. Gurholt and Haukeland (2019) point out that this multitude of underpinnings is commonly traced back to tradition and the right to roam on the one hand, as well as a political differentiation between friluftsliv and sports on the other. Gurholt and Broch (2017) suggest that this leads to a "distinction between outdoor life 'on nature's own terms' and outdoor recreation-cultures 'on the terms of modern sports'" (p. 13). In this context, the authors criticize the common misconception that friluftsliv is inherently sustainable as based on the idea that spending time in nature equals environmental friendliness. Emphasizing findings by a group of researchers looking at sustainability and leisure, Gurholt and Haukeland (2019) point to the findings that friluftsliv is considered the third-worst unsustainable leisure activity in Norway. This relates to the following facts. Outdoor practices tend to be resource-intensive, require equipment as well as the transport to remote places, and can contribute to environmental problems such as pollution, climate change and soil erosion (Gjone, 2021). The academic discourse in Norway addresses public debates about protection and utilisation, for example, regarding the use of urban forests (Gurholt & Broch, 2017) and rural surf destinations (Langseth, 2012). On the interface of outdoor practice, different stakeholders responding to these fields translate nature into a "contested" space echoing and reproducing the different claims mentioned above (Gurholt & Broch, 2017, p. 14). It is this intersection, that offers fertile ground for growing paradoxes in friluftsliv and the Scandinavian relationship towards nature.

Friluftsliv education. One current academic discourse in this field discusses the possible contributions of friluftsliv and outdoor education to overcome the prevailing eco-social challenges of our time. In the Nordic context, research on the human-nature relationship in education is predominantly linked to outdoor or friluftsliv education. Studies from Sweden and Norway, for instance, are often situated in the fields of kindergarten education or physical education as this subject explicitly includes friluftsliv as a core element (Leirhaug et al., 2020; Mikaels, 2019). Research from Norway currently expands on the challenges and possibilities of furthering the eco-social agenda promoted by the Norwegian Department of Education and Training (Haukeland & Lund-Kristensen, 2019; Leirhaug et al., 2020; Skår, 2020). This refers to the introduction of three interdisciplinary

themes in the core curricula for kindergartens and schools: The issues of "health and life skills, democracy and citizenship, and sustainable development" (Norwegian Directorate for Education and Training, 2017b, p. 14). Against this backdrop, parallel discourses that suggest friluftsliv both as motor and obstacle to eco-social change that can promote care for nature emerge and mirror the described friluftsliv paradoxes in an educational context. On the one hand, the Norwegian Ministry of Climate and Environment defines nature as a relevant learning arena to address sustainable development that should be accessed through friluftsliv, both as a method and subject (2018). On the other hand, researchers at the University of South-Eastern Norway discuss what kind of friluftsliv practices can be considered sustainable in the first place (Gjone, 2021). Despite the ongoing debates about friluftsliv as a "contested position" (Gurholt & Broch, 2017, p. 1), research that addresses this issue in the context of Norwegian education is limited (see chapter 2.3).

The role of Place. What a lot of relevant studies in the field of friluftsliv education have in common is that they propose place-responsive approaches to outdoor education. The concept of place-responsiveness can be traced back to phenomenological theories that link human experience, and thus the way we make meaning and learn, to our physical rootedness and entanglement in the world. In this context, the term 'more-than-human' is often used in order to speak about the entirety of living and non-living, natural as well as cultural structures and things that we relate to as humans in this world (Jickling et al., 2018; Lynch & Mannion, 2016). Lynch and Mannion (2016) point out that place-responsive approaches are diverse, still young but currently growing more popular within the educational context, and originate from different contexts. However, the approaches share a general focus on rekindling the relationship between humans and the natural world in order to overcome eco-social challenges. Criticism of the place-responsive approach relates to the structures of power and oppression that might be hidden and reproduced in dominating understandings of place. This refers especially to the tendency of overlooking the interests of indigenous people and the natural world. Within the realm of place-responsive pedagogy, there are a couple of different orientations that are responsive to this, by de-centring the human. This includes Mikael's (2018, 2019; Mikaels & Asfeldt, 2017) notion of becoming, the approach of wild pedagogies (Jickling et al., 2018) and Haukeland's (2021) concept of mindful teaching in outdoor life. All of these authors share a relational understanding of the human connection with nature that is, amongst others, grounded in new materialism, phenomenology and ecophilosophy.

2.2 Care for nature and the human-nature relationship

Research from the realm of outdoor and friluftsliv education recurringly specifies the human-nature relationship by making use of the word *care.* Norwegian research includes Haukeland and Sæterhaug (2020), who identify craft making as an opportunity for "providing an attitude of care for nature" (p. 61). However, they call for more research on the issue, also in terms of approaching the paradoxes surrounding friluftsliv. In the Icelandic context, Thorsteinsson (2014) shows how programs in outdoor education "can produce ideal conditions for giving and receiving care" (p. 20). He recommends that "professionals who participate in similar journeys must […] know

how to apply ethics of care" (p. 26). In the Canadian context, Jickling and Blenkinsop (2020), identify a need to support "relationships of reciprocal care […] between […] humans and the natural world" (p. 126), and to overcome "'self-limited imagination" in teacher education (p. 131). While they provide impulses for and encourage individual reflection on these matters, there is to this date no research on their application. Focusing on the Australian school subject of health and physical education, Welch et al. (2021) draw on indigenous knowledge to "establish emotional relationships of 'love, care and solidarity'" (Tooth & Renshaw, 2020, p. 1424 as cited in Welch et al., 2021, p. 351) as an important aspect of "expanding embodied connections to place, space and 'nature'" (p. 349).

Academic research refers to different theories on care ranging from environmental ethics over feminist ethics to indigenous and traditional ethics, all of which employ a relational perspective on care. Environmental ethics is a discipline in environmental philosophy which strives to determine guidelines for the human relationship with the natural world. It draws on Merleau-Ponty's phenomenological theory of the body-subject that defines the human as a relational being and places experience as an "ongoing encounter" (Parker, 1996, p. 30) with the world at the core of human existence. On this basis, environmental ethics promotes a relational understanding of the world and acknowledges the intrinsic value of its members. Aldo Leopold's *Land Ethics* and Arne Næss theory of *Self-realisation* are among the most cited works in this field (Baker, 2005; Jickling & Blenkinsop, 2020). In the growing movement of ecofeminism, writers often draw on the feminist framework of *Care Ethics* which can be traced back to Noddings and Gilligan (Parker, 1996; Thorsteinsson, 2014; Warren, 1990). In a general sense, care ethics understands human beings as relational and "stresses the importance of emotions and empathy in the formation of moral judgments and principles that guide action" (Jax et al., 2018, p. 4). Several researchers hint at a link between these theories and indigenous or non-western traditional perspectives on the human relationship with the natural world (Grim, 2001; Jax et al., 2018; Toadvine, 2005). Indigenous and non-western traditional views resonate with feminist theories in adopting a more relational world view in which "nature is often at the same time care-giver and care-receiver."(Jax et al., 2018, p. 5). I will briefly outline Noddings' foundational concept of care and Næss' theory of *Self-realisation* as most relevant for the Scandinavian context (cf. Haukeland & Sæterhaug, 2020; Jickling & Blenkinsop, 2020; Thorsteinsson, 2014).

In Næss (1988) theory, care for nature emerges as an implication of "genuine love" of other as a result of "self-love" (Fromm 1956, as cited in Næss, 1988, p. 23). This is something the author adopts from Fromm's ideas on *Selfishness, Self-love and Self-interest* to transfer it from a perspective on humans to one that includes "living beings in the wide sense" (p. 23). Næss (1988) contextualises this in his elaborations on the ecological self, by characterising self-love both as a condition for and outcome of self-realisation. The ecological self is realised by a process of "identification with others" (p. 20). This realisation of the ecological self is what I understand to be self-realization. Næss introduces this concept to acknowledge that "we may be in, of, and for nature from our very beginning" and thus entangled "with the larger community of all living beings" (p. 20). Against this backdrop, he argues "self-realization is hindered if the self-realisation of others, with whom we identify is hindered. Love of ourself will labor to overcome this by assisting in self-realization of others according to the formula 'live and let

live'" (p. 20). As pointed out above this requires self-love, which results from acknowledging selfishness in loving, which in turn requires that we see ourself in the other. This means that love and self-realisation are mutually dependent. Næss explains this as follows:

> We need environmental ethics, but when people feel they unselfishly give up, even sacrifice, their interest in order to show love for nature, this is probably in the long run a treacherous basis for ecology. Through broader identification, they may come to see their own interest served by environmental protection, through genuine self love, love of a widened and deepened self. (Næss, 1988, p. 24)

If care for nature is a consequence of love for nature as hinted at above, then it is a condition for identification with nature (or self-realisation) and a result of it as well.

In Noddings (2005) ethics of care, care for nature is identified as one of four "centres of care" (p. 49) as an essential part of the human being. Thorsteinson describes Noddings' concept as

> relational—that is, a caring relation is a connection or some kind of encounter between two human beings. For this relation to be called caring, both parties (carer and cared for) must contribute in characteristic ways. To be able to care, you must focus your attention, or as Noddings (2005) says 'When I care, I really hear, see, or feel what the other tries to convey'(p. 15, as cited in Thorsteinsson, 2014, p. 21).

This suggests that care arises from an active engagement with some other. Drawing on McKenzie and Blenkinsop (2006), Thorssteinsson (2014) distinguishes further that "care can differ between cultures, within groups of societies and also according to class, gender and other determinants. But it is also a universal aspect of human life" (p. 21). In order to develop care for nature in educational settings, Thorsteinsson distinguishes clearly four centres of care after Noddings: "care for [1] self, [2] intimate others, [3] distant others, [4] animals, plants and the Earth, human-made environments and objects and ideas" (p.22). Furthermore, he presents Noddings' strategy to nurture care through "modeling, dialogue, practice and confirmation" as helpful in nurturing care in outdoor education (p.22-23). He points out that "that people commonly apply these methods consciously and unconsciously, both in raising their own children and as professionals in relation to other people's children" (p.23), and conceptualises them as follows: *Modeling* can be understood as a kind of role model function that includes showing "how to care by creating caring relations" (Noddings 2005, p.22 as cited in Thorsteinsson, 2014, p. 23); *dialogue* refers to "an open ended-conversation […] it serves to connects [sic] people to each other"; *practice* is described as "opportunity to gain skills in care", and *confirmation* is specified as "an act of affirming and encouraging the best in others" (Thorsteinsson, 2014, p. 23).

2.3 Teacher education and development

In the search for opportunities to further educational development that is responsive to the questions of our time, researchers highlight the important role of the teacher and call for better support through teacher education and development. In the Swedish school context, Mikales (2019) argues that "the dominant practice of school-based friluftsliv is conservative in the sense that it embraces a view that is not up-to-date with what is happening globally, such as environmental degradation and climate change" (p. 85). Moreover, he finds that teachers in physical education and health seem to solely understand friluftsliv as a leisure activity and struggle to imagine other approaches. The author criticises that friluftsliv has been implemented into the Swedish curriculum

without critical reflection upon its eco-social implications. Against this backdrop, he finds "there appears to be something missing in teacher education to adequately prepare teachers for physical education and health to be able to envision a school-based friluftsliv practice that is any different from the present one" (2019, p. 88). In an action research project, Mikaels (2018) shows how a place-responsive approach to friluftsliv can aid in the process of re-imagining new ways of teaching this subject. This resonates with Jickling and Blenkinsop's (2020) suggestions to further caring relationships and imagination (see chapter 2.2).

Norwegian research picks up on the idea of rethinking educational friluftsliv and understanding the human-nature bond as relational. Haukeland (2020) discusses how "a deep ecocultural consciousness and practice among teachers in friluftsliv education" can be facilitated and points out that "we need more research" on this matter (p.17). In a cooperative action research project, Haukeland and Lund-Kristensen (2019) provide a first approach addressing the facilitation of the three interdisciplinary themes on the example of a Norwegian kindergarten. They conclude that there is a need for more theoretical discussion and research on several matters. They mention the importance of looking at differences in the kindergarten and school context and what their approach means for teacher education. Skår (2020) presents a teacher educator perspective on how the interdisciplinary topic of sustainable development can be integrated into the subject of physical education. In resonance with the suggestions of the Ministry of Climate and the Environment (2018; see chapter 2.1), her findings indicate that this topic should be addressed through friluftsliv as one of the subject's core elements and identifies local environments as relevant learning arenas. However, she finds that there is no consensus on how to define sustainable development in physical education, recognises friluftsliv as a paradox and identifies these factors as hinderances for the agenda of sustainable development in schools (see chapter 2.1). This suggests that Mikaels (2019) elaborations on the "need to re-imagine the educational practice of friluftsliv" (p. 85) are equally relevant in the Norwegian context. Additionally, Leirhaug et al. (2020) confirm the potential friluftsliv has to facilitate the three interdisciplinary themes. However, they stress that the subject of physical education should not be solely accountable for providing opportunities for students to feel friluftsliv activities in their body and that experiencing the joy of nature should not solely rest on the physical education subject. They advocate for, and remind us of, a common responsibility across subject disciplines as anchored in the Norwegian core curriculum. They also call for extending the boundaries of friluftsliv research, although this call appears to receive little response up to this point.

In the wider field of place-responsive pedagogies, major contributions are made by representatives of wild pedagogies. Winks and Warwick (2021) emphasize that "the cultural conditions for educational practice can be set (and challenged) in multiple ways: through national and school-based policy, as well as individual teachers who enact on a daily basis the educational approaches which make up the systemic approach"(p. 379). This means that the potentials to further educational development lie in the support of teachers and the development of policies. However, Aikens (2021) points out that institutional frameworks are slow to change. Therefore, she recommends looking for opportunities within the margins of institutional frameworks and policies. She calls these "'interstices', […] the space in between" (p. 275). She identifies "the need for professional learning or scaffolding

to support imagining" as "perhaps the most compelling and actionable finding" (p. 285). This is because educators need to be able to identify these interstices to implement new approaches in everyday practice. Winks and Warwick (2021) find that educators should be supported in recognising "the shared agenda" (p. 374) between their educational values and approach, and the conditions of the institutional framework. Against this backdrop, Aikens (2021) encourages "continued applied research documenting successes, challenges, and, most of all, learning from such pilot projects employing riskier and wilder pedagogies in schools" (p. 284).

Summing up, the current research on the human-nature relationship in education delineates teacher education as a key starting point and re-imagining friluftsliv as well as care for nature as relevant factors for supporting timely educational development. Teacher education is addressed repetitively as a relevant factor to develop an educational practice that supports human-nature connection. Nevertheless, only Skår investigates in the field, presenting a teacher educator perspective. However, as her focus is mostly oriented toward educational practice in schools, she does not provide much insight into how teacher education does or could contribute to further the agenda of sustainable development or the human-nature relationship. In the Nordic, as well as the global context, surfaces a strong need for development in teacher education that responds to pressing eco-social issues. This development should be sustained by descriptive research that sheds light on how to support this development in different contexts. These thoughts delineate my research interest as outlined in the next chapter.

3 An integrative conceptual framework

This chapter introduces relevant theory that I used to conceptualise my research. The first two chapters are dedicated to hermeneutics and pragmatism as fundamental research positions. Subsequently, I outline Goodlad's concept of curriculum inquiry and Bjørndal and Lieberg's concept of ecopedagogy. Finally, I present Haukeland and Lund-Kristensen's (2019) ecopedagogical approach of the SPIRE model, which combines pragmatism, curriculum inquiry and ecopedagogy and is the framework for my research.

3.1 An interpretive (hermeneutic) approach

According to Given (2008) researchers agree that "qualitative understanding of any phenomenon is based on making meaning of specific experiences and, therefore, is inherently an interpretive practice" (para. 4). Consequently, interpretative approaches are used in a variety of theoretical frameworks and disciplines, resulting in "many qualitative paradigms, ranging from constructivism and feminism to cultural studies and queer theory, as interpretative paradigms, thus stressing this legacy from hermeneutics" (Denzin and Lincoln 2011, as cited in Brinkmann et al., 2014, p. 22). What they have in common is a focus on understanding rather than explaining. In this context, interpretation is understood as an integral part of understanding. It can be traced back to Weber's notion of *Verstehen* and Nietzsche's idea that truth is a matter of interpretation (Given, 2008). Furthermore, it must be seen in close connection to hermeneutics, which originates as an approach to interpreting bible texts and was later coined amongst others by Dilthey, Heidegger and Gadamer (Brinkmann et al., 2014). Hermeneutics defines interpretation as a human approach to understanding, both in life as we live it and in research. Consequently, research applying this approach could also be understood as "double hermeneutics" because it strives to interpret the interpretations of others (Giddens 1976 as cited in Brinkmann et al., 2014, p. 21). Gadamer (1960, as cited in Brinkmann et al., 2014) maintains that "interpretation depends on certain pre-judices [...] without which no understanding would be possible" (p. 22). In other words, interpretation and thus understanding is always based on preconceptions that originate in other contexts. Understanding of actions, speech or text therefore never originates from a blank sheet, but from "a larger horizon" (p. 22). For this reason, reflexivity is also an important point of a hermeneutic approach (Brinkmann et al., 2014; see chapters 1.1 and 4.5.3). This can be linked to a constructivist perspective which assumes that human experience, behaviour and action is always socially constructed, as our way of being in the world is determined by social processes from the moment, we set foot in this world (Spencer & Walsh, 2014). However, while a purely constructivist approach attempts to explain socio-cultural phenomena, my research is more interested in understanding and describing the situation in teacher education as it relates to care for nature from a teacher educator perspective. For this reason, I employ a constructivist interpretative paradigm that understands my results as a co-construction that arises from a dialectical relationship between my own preconceptions and interpretations as researcher, as well as those of the teacher educators and the ones presented by the Norwegian Department of Education and Training.

3.2 Pragmatism

According to Parker (1996), pragmatism is a theory that defines experience as core of "knowing the world" (p.23). It is based on the epistemological assumption that *self* and *other* relate to each other and are defined in the process of knowing through experience. This idea is amongst some others coined by Dewey. Much like in phenomenology, this defines the human as a relational being. However, purely pragmatic approaches focus more on common knowledge as an outcome than on the individual essence of an experience. Also, they do not necessarily contextualise experience in its sociocultural background. In this sense, pragmatism highlights that knowledge and truth cannot be seen as absolute. Rather, they should be considered as ongoing and processual, since what is known as truth today may ravel in the light of new experiences (Parker, 1996). These ideas have amongst others been coined by Dewey's philosophical pragmatism (Coghlan & Brydon-Miller, 2014; Parker, 1996). It consists of "(1) Dewey's theory of knowledge and knowing and (2) his theory of democracy" (Coghlan & Brydon-Miller, 2014, para. 1). The first theory represents a fundament of this work and will thus be outlined briefly: The core aspect of this theory is Dewey's model of reflection, "which [he] associated in general terms with the method of science" (para. 4). It is made up of six different phases: 1) A balanced situation referring to a specific activity; 2) an emergence of a significant problem disrupting the situation and provoking the need for thought; 3) the specification of encountered difficulties; 4) forming a hypothesis to solve the problem; 5) the application of the conceived solution "by visible action and observation of results or by mental action and contemplation of results" (para. 4); 6) the evaluation of the results. (Coghlan & Brydon-Miller, 2014). As such, pragmatism offers a guideline on how to pursue education as well as research and is well explored in the field of friluftsliv (see MacEachren, 2007; Prins & Wattchow, 2020). Researchers that apply a pragmatic approach may employ the methodology of action research as, for instance, outlined by McNiff (2016), and employed by Riese and Vorkinn (2002) and Haukeland and Lund-Kristensen (2019).

3.3 Curriculum inquiry

Hallås and Farestveit (2015) point out that curricula are guidelines for learning at school and determine the realisation of teaching practice. Therefore, curricula must be considered relevant frameworks for teacher education as well. In order to describe and analyse interpretive and decision-making processes on the path between national intentions to local realities, Norwegian research commonly draws on Goodlad's concept of *Curriculum Inquiry* (Hallås & Farestveit, 2015; Haukeland & Lund-Kristensen, 2019; Imsen, 2016; Leirhaug & Arnesen, 2016). In this work, Goodlad distinguishes five interrelated "substantive domains" as part of the curriculum delineating the path from concept to result (p. 58). Leirhaug and Arnesens (2016) understand these domains as follows: The *ideological curriculum* is represented in intentions for education, discipline traditions and wishes, and in debates around education, school and subjects. The *formal curriculum* is an officially published written document with respective regulations and guidelines. The *perceived curriculum* shows how the formal curriculum is being interpreted by teachers and in the case of this study by the teacher educators. The *operational*

curriculum points to the implementation of the plan in terms of how the teaching takes place and what it includes. The last point is the *experiential curriculum* which refers to how students and others experience the operationalized curriculum, and it is probably experienced differently by different students (Leirhaug & Arnesen, 2016).

3.4 Ecopedagogy

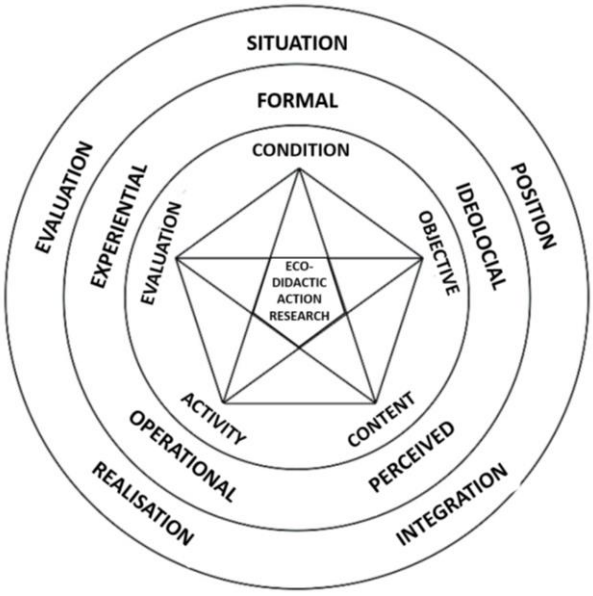
The realisation of curricula calls for didactic conceptualisation and decision-making processes. Norwegian research and literature often refers to Bjørndal and Lieberg's (1973) didactic model that arises from their theory of *ecopedagogy* and conceptualises relevant categories of teaching as interrelated and mutually dependent (Engelsen, 2019; Imsen, 2016). Bjørndal and Lieberg (1973), define their concept of ecopedagogy as theoretical and practical pedagogy that addresses issues in which ecological research and thinking are central. The purpose of ecopedagogy is to raise awareness and promote the values, attitudes, knowledge, and skills that are necessary prerequisites for student to see current developments in an ecological and socio-cultural context. Haukeland and Lund-Kristensen (2019) deduce three overall educational aims of ecopedagogy: 1) giving insight into the biophysical and socio-cultural environment, 2) providing an understanding of environmental problems and which consequences should be taken in terms of attitudes and behaviours, and 3) working actively to solve these problems. Furthermore, the authors identify a normative position in Bjørndal and Lieberg's work by emphasize that ecopedagogy goes beyond the dimension of ecological knowledge to include the development of an ecological position that de-centre the human by identifying with and feeling responsible for all living things. Moreover, they highlight that ecopedagogy relates to official educational goals and student development through a focus on values and attitudes. Nevertheless, it criticises that reducing these aspects to an instrumental concept of competence can make teaching both narrow and shallow, without meaningful anchoring and direction. Moreover, the authors point out that ecopedagogy sees teaching as a holistic creation process that embeds both theoretical and practical knowledge, is guided by the teacher and centres around students, the respective subject and eco-social interests. Finally, they identify environmental education as a central goal in ecopedagogy (Haukeland & Lund-Kristensen, 2019).

To integrate ecopedagogy in teaching, Bjørndal and Lieberg (1973) present a model for planning and describing lessons, which indicates the decisions required for translating plans into action. It contains five components: *objective*, *content*, *conditions* for conducting a lesson in terms of the teacher, the students and materials, teaching *activities,* and forms of *evaluation*. To successfully plan and conduct teaching the teacher must consider and make decisions about each of the factors and bring them together as a whole. The authors emphasise that this process requires a relational way of thinking as the different factors are interrelated and mutually dependent. They symbolize this by linking each factor with all the others through arrows and lines in a star shape. This is represented in the inner circle of Haukeland and Lund-Kristensen's (2019) SPIRE model (see figure 1).

3.5 An ecopedagogical approach: the SPIRE model

In an action research project, Haukeland and Lund-Kristensen (2019) inquire how the three interdisciplinary topics, as introduced in chapter 2, can be integrated in practice on the example of a Norwegian kindergarten. Their approach combines relational thinking as element of Næss' ecophilosophy, Goodlad's curriculum inquiry, and Bjørndal and Lieberg's ecopedagogy with Dewey's philosophical pragmatism. Nevertheless, they distance themselves from Dewey's understanding of science as neutral method for progress and point out that such an understanding could reproduces cultural ways of thinking that are the cause of the eco-crisis (Bowers 1995, as cited in Haukeland & Lund-Kristensen, 2019). Against this backdrop they present a multidimensional model for ecodidactic action research, which they call SPIRE model. It identifies five aspects in each of Dewey's, Goodlad's and Bjørndal and Liebergs concepts and embeds them in three circles: The outer circle represents Dewey's aspects of action research and experiential learning, the middle circle refers to Goodlad's substantive domains and the inner circle shows Bjørndal and Lieberg's didactic categories. While the innermost concepts are an exact representation of the vocabulary used in the original concepts, the outer circle needs more specification. Haukeland and Lund-Kristensen describe the five aspects of action research and experiential learning as follows: 1) *Situation* looks at a specific context with emphasis on experiences of problems and opportunities concerning a certain issue. 2) *Position* means becoming aware of values and visions that are linked to experiences within the outlined situation and taking a personal stand on it. 3) *Integration* refers to making concrete plans and decisions as a consequence of what hinders and helps the position. 4) *Realisation* includes taking concrete choices and actions that make the values visible in practice. 5) *Evaluation* relates to criteria-based reflections on what has been done, what has been learned and what are implications for a way forward.

Figure 1. SPIRE model for ecodidactic action research



Note. Translated from Haukeland Lund-Kristensen (2019, p. 78)

The model is named after the first letters of these five aspects. The circles in the SPIRE model function as three rotating planes and allow for flexible and dynamic relational thinking. This means that the model can be used to consider relationships within and across the various circles (Haukeland & Lund-Kristensen, 2019). The way I understand it, *situation* can be referred to phases 1 and 2 in Dewey's reflection model, while the following four aspects refer to phases 3, 4, 5 and 6 in the same order (see chapter 3.2). This concept is the framework of my data collection and analysis, which means that I relate it to the situation of teacher education as it relates to the

issue care for nature, and the position and experiences of the teacher educators within this setting (see chapter 4). Nevertheless, the aspect *realisation* is approached by following phase 5 in Dewey's model of reflection in terms of mental, rather than physical action. This refers to the teacher educator's reflections on their own realisations of care for nature in their practice (see chapter 5.4). Consequently, my research employs a pragmatic paradigm, but it cannot be considered action research in the common sense.

Finally, Haukeland and Lund-Kristensen formulate five core questions, which I found helpful in the development of my interview guide. Instead of environmental education, I phrased them more specifically towards teacher education and care for nature (see chapter 4.3.2 and annexe 2 and 3): 1) What are factors that help or hinder environmental education (*conditions*)? 2) What is the value of environmental education (*objective*)? 3) What is the essential substance of environmental education (content)? 4) How is environmental education expressed in practice (*activity*)? 5) Which feedback strategy is suitable (*evaluation*)? From this starting point, the authors advise that the order and length of this inquiry process must be individually determined to reach the desired clarification (Haukeland & Lund-Kristensen, 2019).

4 Methods

Following the foundational literature on qualitative research, this chapter provides insights into the methodological consequences and decisions made based on my research questions and purpose as outlined in chapter1.2, and the theories provided in chapter 3. Drawing on Guba and Lincoln (1989), I employ what they call a "thick description" of procedures and reflections to ensure the quality of my research project (p. 241; also see chapter 4.5.2). This chapter is structured by Kumar's (2014) suggestions on research methodology. First, I give an overview of my approach by displaying the overall research design. Second, I elaborate on the targeted group of participants and the selection process. Third, I explain how data was collected and elaborate on developing an interview guide based on my conceptual framework. Fourth, I describe the processes included in my data analysis before reflecting on methodological challenges and limitations in a fifth and final step.

4.1 Research design

The design of this project answers to the agenda of applied research through a qualitative mode of inquiry that draws on pragmatism and is descriptive in its objective. In accordance with Kumar's (2014) suggestions, this is a natural consequence of my research purpose which focuses on understanding and describing the realities of nurturing care for nature in teacher candidates from a teacher educator perspective. This agenda dismisses a quantitative approach, which is more appropriate for discovering trends in wider populations in favour of a qualitative approach that sheds light on personal values as well as perceptions of challenges and opportunities. In this pursuit, I draw on Haukeland and Lund-Kristensen's (2019) ecopedagogical approach by using the SPIRE model as a framework for the collection of data and its subsequent analysis (see chapters 3.5 and 4.4). As this tool is designed to reflect on and develop practice, this research strives to apply it in form of semi-structured interviews and their analysis. The SPIRE model is used to formulate relevant questions that guide the informants through a reflective process on personal understandings and use of nature and friluftsliv for nurturing care for nature, as well as related challenges and opportunities. In an abductive approach to analysis, the data is subsequently summarised, translated where relevant for quoting and categorised as it relates to the SPIRE model. Additionally, thematic coding is used to identify relevant topics emerging from within the framework.

4.2 Target group

This chapter the outlines criteria for selection and describes all processes involved in the selection process before presenting the final research sample.

4.2.1 Selection criteria and process

Informants were selected strategically based on specific recruitment criteria through the academic network of USN. To be able to give the desired insights about nurturing care for nature in Norwegian teacher education, eligible candidates needed extensive experience from working 1) as teacher educators in Norway, and 2) with a focus on nature and friluftsliv. Teacher educators that fulfil the first criterium can be found in teacher education

programs targeting kindergarten, as well as school education. The project aimed at an equal representation by including three participants for each group. I chose to identify and select persons that in addition fit the second criterium strategically through USN's network, to avoid a long process of requesting through all relevant institutions in Norway. My investigations revealed, that in school teacher education, both criteria are most likely to be met by physical education teacher trainers. Due to the limited timeframe of my master thesis (see chapter 4.5.1), I decided to narrow down the window for potential candidates to this group of teacher educators, while maintaining my focus on the core curriculum to be able to research the potential of friluftsliv and nature-based education in a wider context. In this process, three out of five kindergarten and three school teacher educators were selected. Four out of the six contacted teacher educators agreed to participate, including two from both contexts. With two informants missing and current literature on care for nature pointing at indigenous culture (see chapters 2.1 and 2.2) efforts were made to include two teacher educators with a Sami perspective, yet, remained fruitless. Parallelly, one more informant for kindergarten teacher education could be won for the project. In result, this project proceeded with three kindergarten and two school teacher educators. Later in the project, one of the kindergarten teacher educators revealed to have switched to school teacher education. This balanced out the informant situation, with one informant capable of reporting from both contexts.

4.2.2 Presentation of participant collaborators

This section presents all participants and the dates of our personal communication. I will refer to and quote them in anonymized form by assigning a fictive gendered name (see chapter 4.5.3):

Jens has worked as a teacher educator in a bachelor program for kindergarten education with a focus on nature and friluftsliv for the last 21 years. Before that, he worked at another institution in physical education and kindergarten teacher education for four and a half years. Moreover, he has experience in teaching physical education and friluftsliv as a high school teacher. Throughout all those years, friluftsliv has been a core area of his interest (personal communication, March 07, 2022).

Simon has worked as a teacher educator for 24 years, both in kindergarten and school teacher education. In the last years, however, he has worked mostly with kindergarten teacher education. Nature and friluftsliv have been an essential part of his career (personal communication, March 09, 2022).

Annette has taught pedagogy in teacher education for the last 30 years. This includes 27 years in kindergarten teacher education and the three most recent years in school teacher education. Since 2019 she has taught pedagogy in school teacher education and made remarks on both contexts during our conversation. Her professional relation to nature and friluftsliv is embedded in interest in "holistic learning for ecological literacy" (personal communication, March 04, 2022).

Karin has taught didactics in PE and friluftsliv in different teacher education programs for the last eleven years. This includes studies at the bachelor's and master's level as well as a one-year teacher training called *Praktisk-*

Pedagogisk Utdanning (PPU). Before that, she taught PE and friluftsliv at the high school level for about six years (personal communication, March 14, 2022).

Andreas has worked as a teacher educator in different programs for PE and friluftsliv teacher education for the last 13 years at bachelor level, and more recently also at master level. Before that, he worked with outdoor-school concepts at a secondary school for three years, and as a physical education teacher at a folk high school for seven years (personal communication, March 15, 2022).

4.3 Data collection

In this subchapter, I define sections in the two relevant core curricula that will be included as data, before introducing the method of semi-structured interviews as a tool for data collection.

4.3.1 Norwegian core curricula for kindergarten and school education

Care for nature is explicitly included as a core value in both the Norwegian curricula for kindergarten and school education. In the *Framework plan for kindergartens,* it is the section "sustainable development" in chapter 1 (Norwegian Directorate for Education and Training, 2017a). In the *Core curriculum – values and principles for primary and secondary education,* it is chapter 1.5 "Respect for nature and environmental awareness"(Norwegian Directorate for Education and Training, 2017b). These two sections are included as data in my research.

4.3.2 Semi-structured interviews

Interviewing appears as an appropriate qualitative tool for data collection, as it allows me to obtain in-depth information on "shared cultural understandings and enactments" (Smith & Sparkes, 2016, p. 108). To ask "focused but open-ended questions" (p.104) formulated with the help of the SPIRE model and thus maintain a common thread, I chose to conduct semi-structured interviews. An interview guide was developed, containing five parts that differ in terms of their degree of sensitivity and the reflection required from the teacher educators. Following Smith and Sparkes' suggestion, questions that craved most reflection and sensitivity were placed in the middle of the conversations. Furthermore, theory and relevant research were used to develop the interview guide (Smith & Sparkes, 2016). The guide opens with a background section that contains three warm-up questions addressing the participants' work background and requiring little reflective effort. The second part deals with the teacher educators' understanding of key terms and includes five questions targeting values and visions on nature, friluftsliv and care for nature both on a personal and a professional level. These questions point to the SPIRE aspect *position*, and the substantive domain *perceived curricula* (Haukeland & Lund-Kristensen, 2019; see chapter 3.5). The third and most sensitive part addresses the teacher educators' own work as it relates to the agenda of nurturing care for nature and thereby address the substantive domain of the *operational curriculum*. It contains questions on time, others involved (including humans and more-than-humans) and the didactic category *content* that point to the SPIRE aspect *integration*. Moreover, it includes a question on the didactic category *activity* and points at the SPIRE aspect *realisation*, a question on the didactic category *objective* that points at

purpose and value as part of the SPIRE aspect *position*, and a question on the didactic category *evaluation* pointing at the last SPIRE aspect with the same name. The fourth section addresses challenges and opportunities, referring to the SPIRE aspect *situation,* and necessary steps for realising the participant's vision for nurturing care for nature in teacher education, referring to *realisation.* In accordance with Smith and Sparks' (2016) suggestions, the final part gives space for additions and questions the informants may have. Additionally, I developed and noted down follow-up questions "to help keep a conversation going, and to navigate emotion-laden areas" (p. 111) and ensure credibility through member checking (see chapter 4.5.2).

The interviews were conducted over a period of two weeks and ranged in length between one and two hours. As the teacher educators are located in different parts of Norway, the interviews are conducted via video call, using the application Zoom as provided and recommended by The University of South-Eastern Norway, USN (n.d.). Following the informants' preferences, one of the interviews was conducted in English, while the other four were held in Norwegian.

4.4 Data analysis

This deductive approach to thematic analysis as organized by the SPIRE model was combined with a focus on emerging themes from within the framework. In these spaces, I looked for both semantic and latent meanings surfacing from the statements made by my informants (cf. Braun et al., 2016). Ultimately, this mixture of deductive and inductive work levels the approach as abductive in between the two opposing poles (cf. Cassidy, 2016). In the following two sections, I describe how I transcribed, reduced, and reconstructed the raw data to provide a cohesive audit trail as relevant to ensure research quality (see chapter 4.5.2).

4.4.1 Transcription of the raw data

Following Smith and Sparkes' (2016) suggestions, transcription was pursued in close timely proximity to conducting the interviews. As my research does not require an "extremely detailed conversational approach" (p. 116), but rather a "consistent representation of what is said and who is speaking" (p. 116), I employed "orthographic transcription" (p. 116). However, emphasis is marked in italics where I felt it was important to convey the speakers' message. Furthermore, I decided to include "empathic responses like 'hmm-mmm'" and also laughter is indicated in brackets (Smith & Sparkes, 2016, p. 117). Imprecise articulation and dialect are not represented in the transcription. Following these lines, all interviews were fully transcribed in the respective language using the transcription software offered by Sonix.ai. The software automatically produced a first draft by means of voice recognition that was up to 97 per cent accurate. Subsequently, I edited each file manually in accordance with the guidelines above to achieve full accuracy. During the process of data analysis, I identified relevant core sequences and translated those that were in Norwegian to English. As Norwegian is not my mother tongue, I consulted with native Norwegian speakers in case of uncertainty while protecting the participants anonymity (cf. chapter 4.5.3). In some cases, I contacted my informants to gain clarity over specific meanings (cf. chapter 4.5.2, member checking). Finally, I cleaned up the translated sections to improve understandability and

reading flow. Single nonverbal sounds and doubling of words are omitted without indication so long as there is no change in meaning. The omission of longer word-finding episodes or full sentences is marked by an ellipsis in square brackets in accordance with APA7 requirements (Paul Iida, 2017).

4.4.2 Data reduction and reconstruction

The process of data reduction and reconstruction involved different phases of coding and condensing the given information. In this pursuit, I followed Saldaña's (2014) recommendations. According to her "a code in qualitative data analysis is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (p. 584), and "the portion of data to be coded can […] range in magnitude from a single word to a full sentence to an entire page of text to a stream of moving images" (p. 585). My data consists of interview transcripts and curriculum sections as outlined in chapter4.3. For the analysis, I found it helpful, to assign codes, not only to the data but also to my interview questions to create a transparent framework. Consequently, this part of the data analysis includes the three steps of coding the framework, data reduction and coding the emerging themes. Table 2 visualises my approach in a shortened overview, while a full display of this work can be found in annexe 5.

Coding the framework. As a first step, I developed a table for each of the five core-aspect of the SPIRE model (see table 2 and). Additionally, I created a table for the background information gathered from questions 1 to 3 and one for additional information conveyed in relation to question 15. Subsequently, all interview questions were shortened to their number and a keyword and sorted into the table they were designed to relate to, as outlined in chapter 4.3.2 (see table 2 and annexe 2 and 3).

Data Reduction. In a second step, I read the five transcripts one by one, summarised relevant answers in English and added them to the respective tables. Additionally, I chose characteristic statements, translated them into English (see chapter 4.4.1) and added them to the table. Long quotes were shortened to the most meaningful information to maintain a good overview. For the same reason, the table for the aspect *position* was split in two, one representing the informant's values and the other showing their visions (see annexe 6).

Coding emerging themes. In a third step, I read through the tables and the curriculum sections and marked reoccurring topics in different colours. This gave me an overview of relevant themes arising from the material. Subsequently, I assigned a code to each relevant theme consisting of a keyword and a number. The number is determined by the chapter number of the respective data presented in this paper. As my findings are presented in chapter 5, this is the first number of all codes. The second number is determined by order of letters in SPIRE (5.1. *Situation*, 5.2. *Position*, etc.). The third number refers to the subchapter in which the arising theme is discussed. For instance, 5.1.1 "institutional framework" emerged in aspect 5.1, *situation*. Often a statement refers to more than one theme, indicating complex relationships and has therefore several codes.
During the process of data analysis, some answers appeared relevant beyond the aspect they were initially assigned to which was marked by additional codes in brackets.

Table 2. Overview of the reduction and reconstruction of the data material

Aspect	5.1 SITUATION		
Interview Questions		12. Problems	13. Opportunities
Kindergarten	Jens	5.1.5 *"lack of time"* …	5.1.5/ 5.1.2 *"*Self-organised trips*"*…
	Simon	5.1.5 "time in the field" …	*5.1.2 "aesthetic expressions" …*
Kindergarten/school	Annette	5.1.5 *"pushed in all directions" …*	5.1.2 / 5.1.3 *"The best thing"…*
School	Karin	…	…
	Andreas	…	…

Aspect	5.2 POSITION			
	5.2.1 Values			
Interview Questions	4. nature and friluftsliv	5. nature in education	6. care for nature	7A. perceived curriculum B. other sections
	5.2.2 Visions			
Interview Questions	8. Visions			

…

Aspect	5.3 INTEGRATION		
Interview Questions	9A contents and competencies	9B. Periods of time	9D. others involved

…

Aspect	5.4 REALISATION	
Interview Questions	9C. Activity/methods	14. necessary steps

…

Aspect	5.5 EVALUATION
Interview Questions	11. evaluation

Note. An overview of all emerging themes is provided in chapter 1.3.

4.5 Reflections on limitations and methodological challenges

In this chapter, I reflect on the limitations of this research and consider criteria to ensure the research quality and ethical guidelines.

4.5.1 Limitations

This research is conducted within the frame of a 30 ECTS master thesis during the time span of one semester. Therefore, I chose a systemic selection of participants over recruiting across the board of Norwegian teacher education. As a result, this study is limited in several ways. First, it is a weakness of this study that it only includes five informants denying data saturation, which is why generalisations cannot be made (cf. Smith & Sparkes, 2016). Furthermore, four of the participant collaborators have a background in physical education, hence, the study lacks representation of the diversity of subject disciplines of both kindergarten and school teacher education, as well as respective perspectives from Sami culture or other minorities. Consequently, it depicts five individual perspectives from Western culture and the physical education background on the issue of nurturing care for nature in teacher education (see chapter 4.2).

4.5.2 Ensuring research quality

Following fundamental literature for ensuring research quality, I consider Guba and Lincoln's criteria for trustworthiness which correspond to the standards of validity and reliability (Kumar, 2014; Spencer & Walsh,

2014; Thorne, 2014). The criteria for trustworthiness include “criteria of credibility (paralleling internal validity), transferability (paralleling external validity), dependability (paralleling reliability) and confirmability (paralleling objectivity) (Guba & Lincoln, 1994, p. 114). I will look at these aspects as they relate to my research project.
Corresponding to internal validity, *credibility* can be understood as “confidence in the 'truth' of the findings” (Cohen & Crabtree, 2006c, para. 1). According to Cohen and Crabtree (2006c), this can be achieved by adopting different strategies, including “prolonged engagement” and “member checking”, as relevant to my research (para. 2). The former refers to spending a lot of time in the field of interest to develop a deep understanding of its culture. This is partly given in my approach, as my research interest developed on the backdrop of my personal profession as a high school teacher in Germany (see chapter 1.1). Although this involves a different country, my educational and professional journey gives me deep insights into a multitude of contextual factors relevant to the culture of teacher education that helped me understand factors specific to Norway, formulate questions and interpret the data. Furthermore, I employed an informal approach to member-checking during and after the interviews (see chapters 4.3.2 and 4.4.1). According to Kumar (2014), making sure that there is “agreement” between the informants and researchers “interpretation, presentation of the situations, experiences, perceptions and conclusions” provides “participant concordance” and defines the degree of credibility (p. 721).
Second, *transferability* refers to the matters of generalisation and applicability in other contexts and can thus be understood as parallel to the standard of external validity. Guba and Lincoln (1994) admit that transferability is defined by the extent to which relevant conditions correspond to other contexts, which cannot necessarily be assumed. They suggest a “thick description” of relevant processes as an appropriate strategy to meet this standard. However, they point out that determining what exactly that means remains up to the individual researcher as there is no consensus on the definition of the term (1989, p. 241). The same strategy is recommended for the third standard, namely *dependability.* It corresponds to the reliability, which aims at replicability of processes and reproduction of results in quantitative research. I approach the standards of transferability and dependability by providing precise descriptions, visualisations, and reflections regarding my research aims and the corresponding methodological processes involved. Additionally, Cohen and Crabtree (2006b) suggest an external audit as an appropriate strategy to meet the standard of dependability. This standard is adhered to as this research process is overseen by a supervisor to help “evaluate the accuracy and evaluate whether the findings, interpretations and conclusions are supported by the data” (Cohen & Crabtree, 2006b, para. 1). On this basis, I believe my research could be recreated in other contexts, although findings cannot be generalised as they play out in five specific contexts (see also chapter 4.2.2 and 4.5.1).
Finally, *confirmability* is defined as the “degree of neutrality or the extent to which the findings of a study are shaped by the respondents and not researcher bias, motivation, or interest” (Cohen & Crabtree, 2006c, para. 1), and can be referred to the standard of objectivity. However, Guba and Lincoln (1994) point out that while objectivity means the correct application of a method, confirmability requires that findings are accounted for. This means that findings are comprehensively deduced from and linked to their original source through. My research conforms to this principle by providing what Cohen and Crabtree (2006a) call an “audit trail” (para. 1). I provide

traceability of findings to the original source by taking process notes and linking raw material with reduced and reconstructed data through designated codes (see chapter 4.4.2).

4.5.3 Ethical considerations

This chapter considers ethical guidelines for qualitative research as put forth in fundamental literature (Carpenter, 2018; Kumar, 2014; Traianou, 2014) and specific national regulations as required by the Norwegian centre for research data (Norsk Senter for Forskningsdata, NSD). According to Traianou (2014, p. 62), ethical considerations commonly evolve around "a number of principles […], such as minimizing harm, respecting people's autonomy, and preserving their privacy. There are also some procedures, notably securing informed consent". In addition, Carpenter (2018) focuses in greater detail on three more principles, including "maximizing benefit […] ensuring inclusivity […, and] researching with integrity"(pp. 7–8). I will discuss these issues in terms of my research project.

The value of respecting people's autonomy is supported through the principle of informed consent and understanding informants as collaborators. Traianou (2014) points out the importance of informed consent to avoid undermining peoples' "capacity and right to make decisions about their own lives" (p. 63). Carpenter (2018) highlights that respecting individuals' rights "goes beyond just ensuring that the autonomy of participants is not compromised; autonomy should be enhanced as participant collaborators become empowered through the research process"(p. 7). I apply the principle of informed consent, following NSD (n.d.) guidelines which determine the participant's consent as a legal basis for data processing. Explicit consent was obtained concerning the inclusion of questions on political opinions and philosophical beliefs related to the topic. The participants were informed about the processing of their personal data through an information letter (see annexe 1). In this context, I highlighted the research focus on identifying opportunities to foster a positive and appreciative environment. In all five cases, consent was given in the beginning of the interview and documented electronically. The participants had the right to withdraw their consent and require access to, correction or deletion of the data at any time during the data processing by email, which none of them made use of. Second, empowerment is attempted by understanding participants as collaborators. This was expressed both in dialogue during the interviews and maintained by providing access to the personal data in the process as well as the final thesis as the product of this project.

Preserving privacy includes reflections on the necessity of obtaining specific personal information and providing confidentiality (Traianou, 2014). It seems relevant to repeat that my research addresses both issues of private and public settings. This is appropriate because educational practice is formed and underpinned by personal values and understandings (cf. Haukeland & Lund-Kristensen, 2019). It is necessary to grasp this relationship in terms of nurturing care for nature to explore relevant issues on the path towards a timely development of educational practice that may help navigate didactic conceptualization and further research. It is likely that the participants, as professional educators, agree to this, and are willing to share such information. However, discomfort must be anticipated where questions reveal inconsistency between values, conditions, and practice. This challenge was

met by informing participants about the research purpose as well as relevant interview questions and by obtaining their consent as described above.

When it comes to confidentiality, Traianou (2014) points out that this is commonly achieved by the principle of anonymization. Following NSD guidelines, the participants' personal data was anonymized to ensure that no unauthorized persons were able to access their information (NSD, n.d.). Their name and contact details were replaced with a fictive name (see chapter 4.2.2). The list of names, contact details and respective fictive names were stored separately from the rest of the collected data. The data was stored and protected through the cloud services provided by USN. The collected personal data were not made available to any third party. At the end of the research project, the identification key was deleted, personally identifiable information was removed, and any digital recordings were deleted. The data subjects will not be identifiable in the thesis.

The risk for potential harm to participants is considered low in the context of this research project, however, some considerations on the matters of reputation and emotional distress were made. According to Traianou (2014) qualitative research is less likely to pose significant threats to participants. Yet, she offers a list of types of threats that should be considered and points out that harm is also determined by the degree of research topic sensitivity and participant vulnerability. In terms of my research, it is relevant to note that as teacher educators, the participants represent public institutions for higher education. Moreover, my research asks for reflections on personal values, the perception of different work conditions and educational practice as they relate to nurturing care for nature. It is relevant to note that some of these aspects may stand in conflict with each other. To provide a safe space in which personal impressions can be uttered freely, and emotional distress or threats to reputation and status can be avoided, my research adheres to the principles of preserving privacy, obtaining consent, and contributing to empowerment, as discussed above.

Following Carpenter (2018), and Haukeland and Lund-Kristensen (2019), I aim to maximize benefit by employing elements of action research as presented in chapter 3.5. Although the scope of my project does not allow me to incorporate the full process of action research, it resonates with this method in terms of overarching aim, employment of pragmatism and an understanding of participants as collaborators. As pointed out by Carpenter (2018), in participatory action research "the overarching aim is typically to improve a situation for a community or a group of professionals wishing to develop their practices" (p. 7). Equally, my research matches the agenda of improving educational practice in terms of nurturing care for nature in teacher education. In this wider picture, my research project inspires a reflective process that looks back on the respective informants' practice and hopefully influences future practice. In this context the reflective process can be understood as a collaborative effort between the teacher educators' thoughts and my analysis thereof. Furthermore, I understand this reflective process as part of the ongoing cycle of evaluation and development as integral to the world of educational practice beyond the scope of my or any other research. In this sense, I also hope to make a humble contribution to the empowerment of the professionals involved.

The aim of insuring inclusivity refers to "an ethical imperative to ensure that no voices are lost and benefit is enjoyed by all" (Carpenter, 2018, p. 8). Following this imperative, my research includes representatives of both

kindergarten and school teacher education. Furthermore, I attempted to include a Sami perspective which was, however, unsuccessful (see chapter 4.3.2). To include the voices of the more-than-human world, Lynch and Mannion's approach of the walking interview was considered. However, I had to discard this idea as informants were scattered across Norway. In terms of maintaining a low-cost profile and low thresholds for participation, the video-call appeared as more natural choice for this project (see chapter 4.3.2). In compromise, I incorporate the lens of place-responsiveness in data collection and analysis by asking specifically for places involved to identify instances of the more-than-human (see chapter 4.3.2).

According to Carpenter (2018) researching with integrity is achieved through identification of suitable methods, authentic presentation of collected data intended for the benefit of all involved, transparency in the process of data analysis, and a "socially responsible" distribution of findings (2018, p. 8). He emphasizes "the importance of reflection" in this context (p.8). Drawing on feminist research theory, this also addresses the practice of self-reflexivity creating awareness about researcher perspectives that may inform and shape the research process (Rice, 2009). However, Traianou (2014) warns that aspiring to all-embracing reflexivity may inhibit the researchers capability to act, and concludes that the degree of ethical consideration must be determined individually. Following these suggestions, I provide a thorough descriptions of procedures such as the process of informant selection, data collection and analysis. Furthermore, I explain ethical, methodological, and topical decisions based on relevant literature and my personal reflections. Finally, to incorporate a reflexive praxis, I include a chapter on my personal motivation and background which influenced the research process (see chapters 1.1 and 4.5.2).

5 Findings

The following sections present a thematic analysis organized by the working principles of Haukeland and Lund-Kristensen's (2019) SPIRE model. Accordingly, this chapter is structured into the five sections *situation*, *position*, *integration, realisation,* and *evaluation.* The themes that arose from the step of thematic coding are discussed in the respective subsections. As pointed out in chapter 4.2.2, I will quote the participant collaborators by giving their fictive name only, which refers to the single personal communication I had with each of them. Dates for these instances are given in the mentioned chapter.

5.1 Situation

This section discusses different conditions that the teacher educators view as problems and possibilities to foster care for nature through their programs. The sections are organised to address the five themes institutional framework, human resources, resonance, acknowledgement and cooperation, human-nature relationships, and natural and human-made resources.

5.1.1 Institutional framework: "We are pushed and pulled in all directions"

Both challenges and opportunities arise from the institutional framework. Relevant regulations in this context are related to time allocation, human capital, and workloads. Simon experiences that "the groups have become larger, [...] more students and fewer teachers. And you feel time pressure when you are supposed to achieve many goals in a short time". He experiences these institutional requirements as problematic as he sees them as cause for being "moved more and more into lecture halls and more and more away from nature" (see also 5.1.5). In this context, Jens also emphasizes that him and his colleagues do not "experience being allocated more time". Annette makes similar observations. As a result of an increased student number and "so many things to cover in the in the curriculums" she reports feeling like "we are pushed and pulled in all directions" and hindered to do "what we believe in". She explains that this has something to do with "how the university spend their money [sic], organize their people". This underlines that time allocation and distribution of human capital is determined by financial prioritization at the institutional level.

Contrarily, the school-based teacher educators Karin and Andreas do not experience this pressure. However, Karin understands that "time allocation" can play a role in the sense that limited time forces teacher educators to prioritize some things over others. Nevertheless, she points out that this in turn is defined by the teacher educators' professional background (see chapter 5.1.2). Andreas takes this issue from the dimension of teaching to the dimension of educational development. He experiences that a multitude of prevailing agendas within his department can take away from developing teacher education to improve care for nature:

> I experience that we are a very large professional environment in friluftsliv, but we have a lot of agendas that scream in different directions. And it might be a hindrance then to get focus for a type of project like this. So, it must be initiated in a way, and it means gathering around it. So, it probably has a bit of a hindering effect. (Andreas)

In this context, Andreas also points out the importance of incentives "from the department level. Yes, it must come from the authority level". He argues that "if you want a green shift, then - I know there are a lot of initiatives and it's a bit about orientation in it, of course, so it depends on me as an actor as well". In saying this, he recognises that the responsibility for optimizing teacher education in terms of care for nature "rests on individuals, but it rests on institutions and departments" (Andreas). In this context, he speaks of incentives in terms of financial support (see chapter 5.1.5), and initiatives that encourage interdisciplinary work (see chapter 5.1.2). In extension, these issues are linked to an institutionally limited amount of financial resources, which I will discuss further in chapter 5.1.5. In this context, I will also address other issues affected by this, such as accessible gear (chapter 5.1.5), as well as the question of transport and appropriate natural learning locations (see chapter 5.1.4). These elaborations clearly show an intersection between the institutional framework, time, and money as resources as well as the teacher educator background (also see chapters 5.1.2 and 5.1.5).

Apart from that, all teacher educators mention also opportunities related to the institutional frameworks and regulations. This holds true when it comes to the core-curriculum, and particularly the three interdisciplinary topics. They are mentioned as relevant to the agenda of care for nature repeatedly by all teacher educators (see chapter 5.2.1). This can be characterised on the example of Andreas, who feels that the curricular framework frees him from promoting forms of friluftsliv that are focused on activity rather than bringing nature to the fore:

> [In competition for students] we become so keen to offer eventful studies where [...] students will be able to participate in learning, for example, a rich range of activities that are resource-intensive and strictly taken not necessarily so environmentally friendly and perhaps challenging. And we as professional environments, we can of course drive this forward. [...] and then we may promote a development that is not in line with the time and the issues we really should address. So, I think this is a topic that the academic field of friluftsliv across the institutions must also take seriously. But when I work with teacher students, they are committed to a framework and curriculum. So, I feel a freedom in the sense that here I am supported well to do what I have to do, and I experience that the students are also well aware of it, and in a way accept these premises. They do not expect a juicier friluftsliv, exotic nature and accommodation that would require more equipment and longer trips and more conditions. So, I think it's an advantage to work with teacher students. (Andreas)

This statement shows that Andreas observes a tendency within the friluftsliv community to focus on adventure, gear, and craving activities, which he understands to be a problem in the pursuit of nurturing care for nature. This issue is discussed further in chapter 5.1.4.

5.1.2 Human resources – Professional background and development: "We stretch the curriculum. We interpret it in a way so that we can do it"

The teacher educators' professional background as well as their efforts for professional development arise as relevant factor from the data material. In this context, the teacher educators point out values and competence as decisive to whether care for nature is addressed or not. The former refers to a personal attitude that recognises care for nature as important and determines a professional focus on the topic. The later refers to personal abilities that allows the teacher educators to interpret the curricular to include care for nature, develop their own praxis towards this and conduct specific forms of teaching in nature.

The teacher educator background is explicitly addressed by Annette and Karin. In this regard, Karin feels that possibilities for nurturing care for nature in teacher candidates are defined on the backdrop of her own "education, that is, my competence, it's my learning style that makes me think it's important". She elaborates that teacher educators, like educators in general, identify possibilities and make prioritizations regarding time frames and curricular guidelines based on their professional background and values:

> I who experience that I see the opportunities for nature and outdoor life in many places, I will then prioritize it. While another teacher who may have a different academic background then, or a different type of theoretical positioning, or a practical positioning, would make other choices. […] then that connection between time allocation and teacher competence is absolutely crucial because we are asked to prioritize. And the teaching profession is a value-oriented profession, which means that here, too, it becomes value-based. (Karin)

In addition to that, she argues that whether teacher educators employ outdoor learning in their practice comes down to their personal understanding of what friluftsliv is. According to her, "time allocation is not necessarily an obstacle" if friluftsliv is linked to the local surroundings, while "if you are used to go far over mountains in order for it to be call friluftsliv, then the number of hours is an obstacle because then it takes so much of how you teach". This also relates to the matter of human-nature relationships, which is discussed more widely in chapter 5.1.4. These personal understandings and orientation might then also be the basis for how teacher educators consider and interpret the curricular guidelines as frame for their training.

The professional background of the teacher educator also plays a role in Annette's elaborations on the importance of reading and interpreting relevant curricula. To provide an education that is relevant to the kindergarten and school teacher context, teacher educators must respond to the curricular provided by the Norwegian Department for Education and Training. In this regard, Annette emphasises that educators "are supposed to read them, analyse them, interpret them and realise them in our own local way" and concludes, "our room for action is quite big". Looking back on thirty years as a teacher educator, she has always found opportunities to realise a way of teaching that was in line with her beliefs by looking at the core-curriculum. Nevertheless, she observes that a prevailing focus on specific disciplines leaves many educators unaware of this opportunity:

> Every national framework has a core-curriculum, the fundamentals. So, I always go to the fundamentals, because then there I can find whatever I want. […], I think that's the most important thing. But that's also the part that teachers don't read. They go straight to their subject. I'm a math teacher, so I have to focus on the maths parts. (Annette)

Annette's point offers opportunities for and must be considered if care nature is to be pursued interdisciplinarily as envisioned in chapter 5.2.2. Additionally, most of the teacher educators point out that competence on their own part is needed for implementing and realising lessons relevant to care for nature. This can be exemplified by one of Simon's statements:

> It is often important with competence that the teachers who go out that they have that focus on sustainability, it is quite demanding to have a common thread throughout the program, that there are some learning goals and maybe some educational goals on such a trip. It requires a lot of competence. One must always be active with the students initiating reflection, reflecting on the choices that were made, true. Was it necessary to add balloons to this toy here? Could we have chosen any other natural materials? (Simon)

In this quote, Simon explains that it is not enough just to go out. Rather, it is a demanding process this takes competence in terms of preparation, creating a read thread, keeping up a situation in the moment, involving students in activity and reflection. Additionally, seems that all teacher educators that participated in this study are continuously engaged in developing their practice. This also holds true for developing practice towards care for nature and must be seen as opportunity in this context. Andreas explains "we have agreed to work in a profession where we pursue, well, lifelong learning". For instance, Annette reports about numerous situations, in which she explored new approaches through action research, though not in her role as teacher educator. In particular, she talks about working with a storyline project:

> This is primary school, and we did a project, a storyline project, called "Tree of Life" and that was the best thing I've done ever, because it was a half year of good fun and a lot of exploring and we did things that we had never done before, so it was *real* [puts emphasis through speaking] exploring, it was not fake, with the children. (Annette)

Having researched and worked a lot with this approach, she feels that it is a good approach to nurture care for nature as she understands stories to be "nature's langue" (see chapter 5.2.2). Against this backdrop, now she also tries to bring this approach into her current work in school teacher education.

> that's what we have been planning to do this spring […] for one or two days […] next year in August and for that term, this same class I'm teaching now, we are teaching across subjects in math and Norwegian and I think we are going to make that semester into a long story line. Well, that's my, that's my wish, anyway, so I'll try to try. (Annette)

This shows that the exploration of alternative approaches can be useful for teacher education, even if it does not happen in teacher education at first. Apart from that, Annette, and Simon both explore focusing on the aesthetics of nature through photography for calmer, more careful and aware ways of being in nature. Annette explains that she is currently exploring the possibilities of using her camera to discover the intrinsic value of nature "from the inside". In a similar vein, Simon mentions that using photography helped him discover different ways of relating to nature and that it was a tool particularly helpful during corona:

> I myself have become very fond in photography, for instance. And I recognise just that, to be looking for beautiful motifs, finding moods in nature, pulling away a little and focusing on the aesthetic. It has made that my gaze and my way of being in nature, that I walk quietly and walk carefully. So, there is so much, but exactly that with using pictures has helped to strengthen this presence in nature and this attention to nature and the beauty that nature stands for. […] now during corona, we have asked students a lot more to document when they were out on trips alone. We have not been able to take the big joint trips. Then we used photos much more actively and that we can become better at in terms of care for nature. (Simon)

Additionally, Simon mentions "various aesthetic expressions [such as] photography and drawing, poems, Drama" as possibilities to nurture care for nature. Andreas draws inspiration from literature. He feels that "the field of outdoor life in the world that has come further on these things. I find a lot of inspiration that way". Furthermore, he likes to engage his students to develop practice together (se chapter 5.4.3). Nevertheless, he highlights that developing practice is also a matter of time and in extension money (see chapter 5.1.5).

5.1.3 Resonance, acknowledgement, cooperation: "The best thing I've done, ever!"

My research shows that the teacher educators identify cooperation as important opportunity to nurture care for nature in their programs. This includes cooperation with superiors and colleagues as well as with teacher

candidates. In this context, resonance and acknowledgement arise as important precursor to cooperation. Andreas and Simon point address this in terms of their own engagement with a topic such as nurturing care for nature. In this context, Simon observes a problem in the prevailing assumption that friluftsliv is recreation as it denies the educational value of friluftsliv and thus lessens recognition within the professional work environment:

> [In] my role in university it is very important that I experience that I get the support of my superior and that I get support from my colleagues and that a subject of mine is seen as equally important as what goes on inside. So that kind of subject status at the university. It can easily be perceived that we are not doing something that is important, it could well have been a holiday or outdoor school. (Simon)

In this context, Simon explains that it is helpful when others "see the importance and that learning takes place here [outdoors], and that you work with attitudes and values in relation to this [care for nature]". This resonates with Andreas, who explains that he has received "some internal support, for the development work. […] and it's been important, it's a bit about acknowledging what you are interested in and doing". Furthermore, he points out that a positive dynamic with his students "as very decisive". To him this means "resonance with the students, that is, that I get a type of feedback from the students that this is important, this is relevant, and they experience it as meaningful. These things are, after all, very supporting".

Additionally, Simon, Annette, Karin, and Andreas mention that this kind of resonance is also important to facilitate cooperation with colleagues. Annette emphasizes that to integrate nature-based approaches in teacher education, it is important to "to have colleagues that […] well, they're on the same planet. They might be different, but on the same planet". Also, Andreas feels that "you can be more or less lucky with colleagues in terms of having a culture for, and a driver in terms of developing these things to be concerned with these things". This resonates with Karin, who points out the link between cooperation and teacher background:

> I think it's also a bit about who you collaborate with, how they understand their competence as a teacher and teacher role and their subjects, and how they understand nature as part of it. And it is incredibly important who you work with. Now, I am lucky to work with teachers who have the same type of conviction as I have. Then it is easily won. (Karin)

In this context, it is the two kindergarten teacher educators, who also report about working interdisciplinarily to further care for nature. In this context, Simon explains that this helps him to work efficiently with limited resources:

> My job consists very much of finding the gap. […] I have combined some practice and student trips that we take pupils or children on the trip. Then you can say that you gain a little because you do two things at once, you both get some practice, and you have teaching. And then it is also a bit like interdisciplinary thinking, that you go together with several teachers from science, from mathematics, from Norwegian from drama, from arts and crafts, just to take some, and then combine different subjects. Then you gain a lot of resources on it as well. (Simon)

In this context, he points out that it is relevant to work continuously and transparently. That is, "you work with the same people over several years. And then there should be a program that is so transparent that if others get into it, they can read about the teaching programs, and quickly take on a role" (Simon). Moreover, Annette mentions cooperation with colleagues as important in terms of developing new approaches as discussed in the previous chapter. In these instances, she collaborated, amongst others, with a Norwegian primary school project (see chapter 5.1.2), and in an international project with "the 5th grade school in Portland, in the United States". Both projects focused on integrating the storyline approach, which Annette envisions to use more in teacher education

(see chapter 5.2.2 and 5.4.3). Contrastingly, Andreas experiences a lack of cooperation beyond the borders of his department. He feels that it is important to showcase and encourage this kind of work, as he understands care for nature as a shared responsibility between all disciplines:

> for example, related to the interdisciplinary as well, not true, we are an institution that works with physical education in isolation. I do not work with colleagues who have other teaching skills. I think this is a strength for institutions that may have other academic environments closer to and can show more in practice how to work perhaps interdisciplinary and multidisciplinary and project-oriented, in-depth oriented, outdoor school-oriented. So, these things here, I feel like I'm a little alone about it. There is also a reason why the time is not enough, and I know my limitations in relation to establishing that type of collaboration then. I think we will have to look at that eventually. We can't just say that you have to work interdisciplinary. We must also be able to show it through projects and perhaps initiative for the development work then. (Andreas)

Like Simon, he makes a remark on time in this context, which supports the idea that interdisciplinary work could be an opportunity in terms of increasing time for development and being in nature. However, this might be true only within a certain limit which I will pick up on in chapter 5.1.5.

5.1.4 Human-Nature Relationship: "be[ing] a role model in creating good attitudes towards care for nature"

The human-nature relationship arises as relevant factor both on a personal, as well as on a wider social level. Concerning the former, several informants highlight the relevance of the teacher educator's knowledge of and relationship with nature. On this note, Karin emphasizes that "local knowledge" is an important factor for the agenda of nurturing care for nature, because "nature is […] is more, it is both places and culture and surroundings and materiality somehow, it is more, there are more things to nature." In this quote, Karin hints at the uniqueness of different places that is a product of many specific factors coming together to form its characteristics. Knowing and understanding them gives rise to the possibility of including them in practice. Simon adds to this aspect when pointing out that he likes to bring students to places that he has a personal relationship with and that it is important to maintain this relationship to be authentic and function as a role model for the teacher students. In this context, he emphasizes that he has experienced loss of joy for nature and friluftsliv over working with it on professional level. Furthermore, he explains that spending time in nature and going on tours alone helped him overcome this lack of joy:

> I've been working with this for quite a few years. And at some point, there is something with eh, you asked earlier about nature, what does it mean to me? And for me, it's a bit divided. It means something to me when I am in nature in my free time. And then actually being in nature has become my job as well. And if it becomes too much of one as in my case, I have worked [with nature] for a very long time, being out in nature can lose a bit, eh, frankly, I lost joy of being on tour, right? It's a job and that is not something I do for myself. So, there I had to be conscious and think that I had to nurture the joy of nature for myself. So, […] it's important to me to get those good experiences. I, eh, go on trips alone over several days without thinking that I have students or others around me who demand a program, but only focus on myself, my own experience. So, it is, I […] thought about this, that one can lose some of the dedication that is so important when one is to be a role model in creating good attitudes towards care for nature. (Simon)

In a similar vein Annette's relationship with nature appears as driving motor behind her pedagogical approach (cf. chapter 5.2.1). I gather this impression by connecting what she says about her personal understanding of nature and her pedagogical approach in different moments during the interview. In the beginning of the interview she

says, “that the deep connection with nature has been there all my life”. In this context, she also mentions that care for nature also has something to do with taking care for oneself and learning to be resilient: “I can’t cross my own boundaries like with take care for nature, then you should take for the care for the nature in your own body as well. Eat well, and sleep well, and exercise well, and not work too much”. Later she emphasizes that she has formed values and attitudes inspired by Arne Næss’ ecological self that inform her practice (see chapter 5.4.3). In this context, she recognises both her responsibility to remain objective, as well as her position as role model for the teacher candidates:

> And of course, this is a dilemma because I, I'm not supposed to bring my creed into my students. They [the teacher educators] must be shown the diversity and then they can choose their way. But it's obvious that we can never be objective, and that's why I always tell my students, these are the opportunities, and this is my approach. (Annette)

In addition to this, Simon, Annette, and Andreas identify different eco-social trends and developments as relevant to care for nature. In this context, Annette and Andreas refer to climate change, but also the Covid-19-Pandemic as well as the ongoing war in Ukraine threatening local and wider environments. On the one hand, Annette observes that these events are creating awareness and hopes that they will make people reflect on their priorities in life:

> It's what's going on in the world with all these[sic] focus on climate. I mean, you must see that people are concerned about it on every level, worldwide, and also the war in Ukraine now, that's bad for people, it's ruining a culture, [...] and also the fires and everything is ruining, bad for the nature, this war. So, warfare around the globe. And as it's so close to us now, so I think this will, actually, also help people to ask what is important in life. And the [sic] corona, the pandemic, you know, it made people ask this real thing, what is important? (Annette)

On the other hand, Andreas displays a more critical view on the issue. He problematizes our tendency to act only when we can feel the consequences by employing a metaphor. In the following statement, he compares us humans to the frog and the slowly changing climate to the slowly increasing water temperature. The boiling water represents the tipping point at which the environment become hostile to us humans. The underlying assumption is that humans, like the frog, will only act in discomfort. By relating our situation to the first scenario, Andreas points out that both in the metaphor as well as in our reality, the problem lies in the slow increase of temperature. The fact that it does not lead to discomfort in the present, makes it difficult to detect relevant changes in the environment pointing to a different future, and thus the need for action:

> It's a bit like that metaphor [...] You can cook a frog in two ways. You have cold water, and you pour the frog into that cold water. Then you turn on the stove and then the water heats up. And the Frog thinks it is very comfortable, and then it becomes very, so, the frog completely lazes off. And then suddenly it gets too hot, but then the frog can’t be bothered to jump out anymore. And then you have the second scenario, where you release a frog into boiling water and then it bounces up again. And this is a picture of us humans living our comfortable lives and we are slowly getting warmer, but in a way we can’t, it is not enough [...] to take action. So, we must have some crisis, and it is tragic that we must have a war to have more democracy and community and we must have an environmental catastrophe to be able to take care of natural vulnerability. And it's about other interests feeling just as important. But when it comes down to it, it's actually the case that some things are more critical and important than another thing. And in our friluftsliv environment, I think that the thought will also impose itself that some issues are currently not interesting. *These* are the important issues. It’s those we have to spend time and energy on. But for now, it's more like that - It's still the case that we are not forced to prioritize. (Andreas)

By comparing humanity to the frog that slowly gets warm, he warns that, eventually, we will find ourselves in a hostile environment that cannot be escaped. Ultimately, he suggests that when we finally feel uncomfortable

enough to make a change, it might be too late. Additionally, Andreas highlights that focus on important issues like democracy, community and the environment can be lost to a multitude of responsibilities and agendas in our life that may currently feel equally important. This relates to the multiple agendas arising from a work context framed by institutional guidelines (see chapter 5.1.1), but also to lifestyle choices on a private level.

The tendency to prioritize a human over a natural agenda is mentioned as problematic in several other contexts. First, Annette observes this tendency in her teacher students and relates it to being disconnected with nature and a lacking ability to think deep:

> I must admit that some of my students they are, nice people, but they are not to focused on doing hard work. It's the easy way. Quick fix. Some of them [...] a lot of young students today they don't want to say no. They have to work, for instance. Uh, you know to earn money and they are meeting friends and sometimes I feel like being a student is just like a hobby. And I think it's because [...] we are not trained to be deep, and maybe that has something to do with to be disconnected with nature, because in nature you can have the opportunity to be slow. (Annette)

Reversely, Annette recognises reconnection with nature as opportunity for in-depth thinking, decreasing pace and regaining focus in an everyday life that is often flooded by a multitude of agendas. additionally, Simon and Andreas problematize the tendency towards an activity focus within the friluftsliv community. In response to this, both highlight having made efforts to find other ways of engaging with nature to promote sustainability and care for nature. Simon explains that this has inspired the development of working more locally and establishing a gear bank (also see chapter 5.1.5):

> It has been another challenge that we are becoming very focused for the trips [...] to be a bit extreme, that is, that they should be high up in the mountains, that there should be a lot of transport and a lot of gear and a lot of travel to get to places, and that it should be expensive. And I think, that process we have already been through a good deal, that we have begun to think much more about the local areas, started thinking that the school should have the gear. (Simon)

Andreas explains that "that is why slow friluftsliv became something I thought was important to develop for the school". This also resonates with statements made by the other teacher educators on the potentials of local areas (see chapter 5.3.5). These elaborations suggest that on the one hand, care for nature can be hindered by a multitude of human responsibilities and agendas that we face on a day-to-day basis. On the other hand, engaging with nature in a slower form of friluftsliv holds potentials for learning and prioritizing nature.

5.1.5 Natural and human-made resources: Gear, money, and time

Three different themes arise from the data that can be classified under the label natural and human-made resources, namely gear, money, and time. While the former can be looked at in isolation, the other two run like two threads through all themes presented in this chapter and are partly interwoven, too. To avoid repetition, the two issues will be looked at by referring to relevant issues and quotes in each of the four preceding subchapters.

"Available gear." Gear is mentioned as relevant asset by Karin, and Simon Both feel that accessible gear opens possibilities for nurturing care for nature. Karin feels that "available gear for students and for the teaching" is important "so that you can bring all students with you, regardless of their background and life situation [...] and they can experience being outside as positive". Simon points out that gear is both an opportunity for teaching and

a financial challenge. He explains that to counter the effects of an activity focused friluftsliv approach, his institution has invested in a gear-bank to supply students:

> Students do not have to buy special gear, but we can borrow from the school. So, only personal equipment such as woollen clothes and windproof, waterproof clothing is required. But otherwise, knives and tents and storm kitchens, canoes all this special equipment, that, the school provides. So that can be a financial challenge for some schools and a question of priority. So, I think it is important to think along the lines of a kind of gear-bank that a school has, to make this free of charge for students. (Simon)

In this context, Simon points out that this is a privilege and that not every institution might prioritize or have the resources for providing equipment.

"A financial challenge." As evident from Simon's elaborations on gear, money often arises as challenge on the backdrop of other issues and is a question of prioritization on an institutional level. This also becomes evident on the example of acknowledgement, which Simon, and Andreas identify as relevant motivational factor. As pointed out in chapter 5.1.1, Andreas sees this in relation to incentives from the authorities. He comments, "I may miss more incentives to be in this type of development. […] If a type of development is wanted, then it should also be prioritized in terms of development funds and project funds and things like that. A lack of that can be recognised as a type of hinderance". This statement shows that such a type of support is an issue of financial resources by extension.

On a different note, Andreas makes a point that financial limitations be an opportunity for sustainable development:

> We live in a time where the green shift of course also affects our societal mandate, and our commitment to what we work with. And it depends on individuals, but it depends on institutions and professional environments. And then it's a little interesting then, that very often, I think, we as humans are by nature kind of slow in wanting to develop something when we are quite happy with what we are doing. Also, I have such a story where I was in Lillehammer and held courses. And then I hear from teachers that work at the same high school that they used to have practice going on some trips for many years - we are talking 20, 30 years - and went on the same trips and have been happy with it and almost thought that, no, if we drop those trips then we lose our foundation. So, they were not willing to change. But then there is a clear message from the school's leadership that it is not economical to carry out those trips anymore, so they have to move to their immediate local environment. And the funny thing is that when they talk about the programs that they then had to develop in their local environment, they experience that they are actually better than what they have had before. In addition to the fact that they then respond to criteria such as that they should be based locally, should be simple and not resource-intensive, right. They also feel that the interdisciplinary exchange is getting better and more in line with the curriculum. So, it is often a bit paradoxical that there must be financial, perhaps, restrictions for us to actually make the changes we should have made on an ideological basis at an earlier time. (Andreas)

This example shows that the economical restrictions posed by the school leadership forced the teachers to work in local areas, which they then found to be very useful in the agenda of sustainable development.

"Time to come together." Time arises from the data as single most emphasized factor that are also interwoven with many of the other points made in other chapters. This includes time as a resource distributed by the institution. As Annette points out this is also where "time is connected to money" (see chapter 5.1.1). All kindergarten teacher educators report a lack of time in nature. Jens experiences a "lack of time" for being outside and feels that this is the "biggest hinderance" for nurturing care for nature in his program. This resonates with Simon, who says that "the biggest challenge is that the time in the field, or the time in nature has become less and

less" and explains, "going through the whole process" including preparation, building the situation, maintaining a red thread, and involving students in activity and reflection "that is what takes time". Both Jens and Simon see it as a possibility to include self-organised trips in their programs to increase the time in nature for teacher candidates. Simon explains that this means, "you let the students organize and go on a trip and document themselves. That frees a lot". Annette also mentions a lack of time in nature but focuses particularly on "time to come together and think deep thoughts". She explains this by saying that without time she is left to remain on "the surface of a thing, […] and I feel like we are doing that in in teacher training now".

Also, the two school teacher educators recognise time as relevant factor. However, they do not feel a lack of time in nature in their programs. Andreas highlights that "relevant skills and knowledge come from repetitive practice". Also, Karin points out that learning in and with nature takes time, because "you have to get together to learn something and to take care of this repeated experience with nature, through nature, it takes some time". In this context she points out that professional competence and different understandings of friluftsliv can make a difference whether time is perceived as a problem or not. She explains:

> My private type of outdoor life is related very much to the local surroundings. So, then time allocation is not necessarily an obstacle. While if you are used to going far over mountains to call it friluftsliv, then the number of hours is an obstacle because then it takes so much of how you teach. (Karin)

In this context she also points out that situating learning in nature is a value choice, which makes time more a question of prioritization (Karin; see chapter 5.1.2).

Apart from the matter of time for teaching, Simon, and Andreas make some remarks on time as personal resource in terms of developing educational practice. Simon mentions that the opportunities arising from and through cooperation and interdisciplinary work as described in chapter 5.1.3 are "very vulnerable, because it is very dependent on teachers who are willing to work a little extra for it, it takes some time to form new plans where you integrate different subjects". In this context, Andreas points out that developing praxis should not be mistaken with or taken for granted in preparation. Rather, he finds that it is something that comes on top of the regular work requirements and is not necessarily rewarded by money:

> Having worked both as a teacher in different school types, and in recent years at university […], I realize that there is just about enough time to prepare lessons, you're occupied with the preparations. But preparing is not the same as developing. And I think some people very often misunderstand or take that for granted. So, if you want a school that will develop, in line with great ambitious new curricula, then I think it must be followed up by a type of incentive, where teachers actually have the opportunity to develop. And I have experienced this. I'm a little more privileged in my position. But I too must be moderate [and take one step at the time to not burn out] as I said before. I cannot have the ambition to develop everything. Then it will just be a 'watery porridge' in the end, as a colleague would have said. (Andreas)

This quote shows that Andreas feels a lack of time for development work. In this context he points out that preparation and development are often understood synonymously and thus development is taken for granted as part of preparation. However, Andreas argues that these are two different things and that he must work carefully with time as personal resources, also in terms of maintaining his own health and wellbeing.

5.2 Position

This chapter addresses teacher educators' reflections on values and visions, as well as their perception of the core curriculum in relation to the issue of nurturing care for nature in teacher candidates.

5.2.1 Values: Educational, socio-cultural, recreational, ecological, relational, intrinsic

This section analyses values connected to the agenda of nurturing care for nature in Teacher education. In this context, I am interested in which values are attach to nature and friluftsliv in the agenda of nurturing care for nature by the Norwegian authorities as well as the teacher educators. For this, I draw on the data generated through the personal interviews, as well as related official documents. The later includes the Norwegian core curricula for kindergarten and school education implemented by the Norwegian Department of Education and Training (cf. 2017a, 2017b), as well as the government's action plan for friluftsliv instigated by the Norwegian Ministry of Climate and Environment (2018). Looking at these data, I will also shed light on the teacher educators' perception of the respective core-curriculum as it relates to care for nature. In this context, special focus was placed on the section in each core-curriculum that explicitly refers to care for nature (see chapter 4.3.1). In accordance with the types of values that arose from the data, this chapter is structured in six sections. This includes educational, recreational, socio-cultural and ecological values that can be categorized as instrumental values. Furthermore, some of the informants connected relational and intrinsic values to care for nature.

Educational (a): "Friluftsliv has an educational potential." In the school curriculum care for nature is addressed through a thematic and cognitive focus on nature that employs experiential learning. Pursued values include "knowledge about and […] respect for nature" (2017b, p. 8), as well as "awareness of how our lifestyles impact nature and the climate, and thus also our societies". For this, pupils "must experience nature as resource and source of utility, joy, health and learning". In comparison, the kindergarten curriculum shows a holistic and practical focus that suggests cognitive, emotional, and embodied ways of knowing more directly. This becomes evident as "children shall learn to look after themselves, each other and nature", gain the "ability to think critically, act ethically and show solidarity" (2017a, p. 10). Unlike the school curriculum, the kindergarten curriculum connects care for nature with the value of sustainable development (see ecological values). In this context it is pointed out that "the children shall be given outdoor experiences and discover the diversity of the natural world, and kindergartens shall help the children to feel connectedness with nature." (2017a, p. 11).
All teacher educators assign a high importance to bringing nature into education and including cognitive, as well as emotional and embodied ways of knowing. In terms of care for nature specifically, they value holistic and interdisciplinary approaches. In this context, all of them point at the educational potential of friluftsliv that offers ways of experiential and exemplary learning. In Andreas' understanding "friluftsliv has an educational potential to bring people closer to nature, into nature, fall in love with nature, car, get involved, maybe even reflect value choice patterns". Furthermore, he argues, "if you really want to touch people and you are supposed to meet this goal […] respect for nature, then I think this is an important way to go to include in a type of education. (Andreas).

However, Karin points out that educational friluftsliv must be differentiated from the cultural understanding of friluftsliv which includes an element of recreation (see below). In the educational context, she argues that "friluftsliv is […] interdisciplinary in itself, both in terms of knowledge and practice and attitudes and values, but it is also an opportunity to work across different professional disciplines in school". This is supported by the fact that all other informants referred to the interdisciplinary topics as relevant values in the core curricula. Additionally, Karin identifies other educational core values of the school curriculum as relevant. This includes sections 1.2 (identity and cultural diversity), and 1.4 (the joy of creating, engagement, and the urge to explore) (cf. Norwegian Directorate for Education and Training, 2017b). Overall, this suggests that the teacher educators value a holistic approach to nurturing care for nature.

Against this backdrop the three kindergarten teacher educators resonate with the educational values portrayed in the kindergarten curriculum. Referring to the school curriculum, however, Karin understands it to be knowledge centred and lacking other ways of knowing:

> I think it has both a cognitive and an anthropocentric perspective on nature. So here is clearly a type of learning that should teach about nature to understand that this is important to take care of, and there are some types of cognitive reasoning you should be able to relate to and in a way derive some actions from. But that's what I think permeates the whole plan. […] this way of thinking, sort of, that we are cognitive beings, not acting and bodily and relational beings. […] So, this is just one example that they [the pupils] should be able to think about something. They must be able to reason and understand that they must take care of nature. But here they do not say anything about doing or practicing or experiencing or […] exploring or interacting. It lacks all of these relational concepts and bodily concepts in this plan here, or in this section. (Karin)

Now, it is important to remind, that the school curriculum does make a reference to nature experience as pointed out above. Yet, Karin feels like these other ways of knowing are not adequately addressed. Contrastingly, Andreas points out that by looking at the section from a friluftsliv perspective allows him to interpret it in a way that includes an "embodied, and not exclusively knowledge-based" approach, "so it becomes a kind of holistic learning". Nevertheless, when it comes to care for nature, he warns that an anthropocentric focus should be avoided. I will come back to this in the next section.

Socio-cultural (b): "Liv[ing] good lives." Both curricula mention care for nature in context with the value of securing "our common future" (Norwegian Directorate for Education and Training, 2017b, p. 8), or "preserving life on earth as we know it" (2017a, p. 10). In this context, the kindergarten curriculum includes the value of solidarity and a perspective on Sami culture valuing "living in harmony with, making use of and reaping the land" (2017a, p. 10). Contrastingly, the school curriculum promotes an understanding of nature predominantly for its instrumental values including "utility, joy [and] health" in addition to "learning" (2017b, p. 8).

The teacher educators' comment on a variety of socio-cultural aspects connected to care for nature. On the one hand, Jens, and Annette make different points on the Sami perspective included in the kindergarten curriculum. While Jens points out that reaping the land stands in contrast with his initial understanding of leaving no trace (see ecological values), Annette resonates particularly with the idea of living in harmony that this is embedded in. She relates this to her understanding of care for nature focusing on connection (see relational values). On the other hand, the two school teacher educators Karin and Andreas understand the school curriculum to be

dominated by an anthropocentric view on nature. In this context, they see care for nature in connection with values such as health, well-being, and social participation. In this context, Karin also points at core value 1.6 (democracy and participation) as relevant in connection with care for nature. In this context, she sees the purpose of care for nature in "educating children and young people both to participate in a society or in a world but also teaching them to live good lives in that world and what they take care of".

Recreational (c): "There is probably a danger of staying in this activity-oriented friluftsliv, or the social friluftsliv and maybe care for nature can then be lost." The selected sections in the curriculum documents do not directly refer to recreational values. However, both touch upon this aspect indirectly by valuing informed and sustainable life choices. The kindergarten curriculum implements this by saying that "children [should] understand that their actions today have consequences for the future" (2017a, p. 10). Additionally, the school curriculum values nature as "utility" and highlights that "pupils shall develop awareness of how our lifestyles impact nature and the climate, and thus also our societies"(2017b, p. 8). In Andreas' understanding of the school curriculum, this also has something to do with recreation. In this context, all informants acknowledge the recreational value of nature and friluftsliv in their private life by connecting friluftsliv and nature to growing up and family and free time. Simultaneously, all of them see an educational value in nature and friluftsliv in terms of their professional life (see educational values). In this context**,** Karin emphasizes that understanding friluftsliv and nature as recreational is problematic in an educational context. Therefore, she argues that friluftsliv needs to be specified in the school context as displayed in the previous chapter:

> I think we have a definition in Norway that somehow bases friluftsliv as something that is for leisure. I think that's a little troublesome when you go into school. So, there I mean you must contextualise it or base it within the school framework. (Karin)

In relation to this she questions the anthropocentric focus of the school curriculum. Andreas expands on this thought by pointing out that "there is probably a danger of staying in this activity-oriented friluftsliv, or the social friluftsliv and maybe care for nature can then be lost". Instead, he suggests a friluftsliv that brings nature more to the fore as described in the section on intrinsic values. Simon understands sections of the curriculum that include a focus on culture as possibility to include care for nature through appropriate forms friluftsliv. This shows that, although the curriculums suggest an anthropocentric position it is possible to interpreted it from an ecological or relational perspective. This seems to be important to if the objective of care for nature should be met. I will expand on this in the next chapters.

Ecological (d): "There is perhaps nothing more important than to move and engage pupils and students in a topic that deals with care for nature." The kindergarten curriculum describes providing "opportunities to give care and to look after their surroundings and the natural environment" as part of the agenda of sustainable development. The school curriculum displays "taking good care of nature" as human responsibility and portrays this as expression of respect for nature and environmental awareness". Looking at the Norwegian version of this section, it becomes clear that care for nature must be understood in terms of nature management. This is because care in this context stands for the Norwegian word "forvalte", which could also be translated as "to

manage" (2017b, p. 10). In this context, it can be argued that both documents display care for nature as responsibility from humans directed to nature.

All informants connect care for nature with ecological values such as sustainable development, environmental protection, and conservation. Andreas argues that the implementation of such values should be made a priority.

> I would say that here we touch on one of the biggest topics of our time which is about the natural basis, climate environment, and that there is such an educational perspective, there is perhaps nothing more important than to touch and engage pupils and [teacher] students in a topic that deals with care for nature. (Andreas)

Jens, Simon, and Andreas specifically point out that care for nature is expressed through action. In terms of educational friluftsliv, Jens, Simon and Andreas specifically highlight that adhering to the value of leaving no trace can be seen as expression of care for nature. Simon extends this to the value of having a low impact on nature through prioritizing local places and food, a restricted use and maintenance of human structures in nature, as well as sustainable commute. This means that ecological values as mentioned before are understood as purpose or consequence of care for nature. When it comes to care for nature, the teacher educators are rather specific about the kind of friluftsliv that express this value, even though their general understanding of what friluftsliv includes is wide and unspecific. Consequently, the teacher educators' position is unified in the idea that not any, but rather a type of friluftsliv that leaves no, or very little trace can be associated with care for nature.

Relational (e): "Experience a love or a joy of being in the places." As pointed out above, the two curriculum sections portray an idea of care for nature that contains direction from human to nature. However, some links to relationality are made in both curricula. This becomes evident as both understand the human impact on nature to have a counter impact on humans, as nature is seen as life basis. This is contained in the ideas on sustaining life on earth as outlined in the section on socio-cultural values. Furthermore, the kindergarten curriculum includes a focus on promoting "connectedness with nature" (2017a, p. 11). On the teacher educators' side, some relate care for nature with connectedness and the development of a personal relationship to specific places in nature. Annette resonates with the kindergarten curriculum particularly in terms of focusing on connectedness, which she understands as central to the agenda of care for nature. She also relates this to the Sami perspective by saying "care, harmony and connectedness, I think they belong together". In terms of developing a personal relationship with nature, Simon and Andreas point out that this is built through experience over time and repetition. In this context, Simon sees a relevance in feelings related to "visiting areas repeatedly and let[ing] them be good places for children where they get time for play and exploration and can experience a love or a joy of being in the places and help build an identity for the places". In this context he also mentions that fostering care for nature in these situations lies "in small actions and it is again often with the teacher being an example or role model". This resonates with Karin, who experiences that care for nature develops in an interplay between students, teacher, nature. Also, Annette highlights that "teachers have to feel and think and do the same things to know themselves so that they can help pupils to know themselves". This suggests the teacher educators acknowledge their own values, relationships and behavior around nature as relevant for the teacher development. Furthermore, it implies that employing a type of recurring, local friluftsliv that teacher educators

and teacher candidates engage in together can be understood as precondition for nurturing care for nature, and not only as the outcome of it. This clearly shows an interrelatedness of educational, ecological, and relational values on the matter of care for nature.

Intrinsic (f): "Look[ing] at nature from the inside." Matters of intrinsic value are less obvious in the two curriculum documents. However, it could be argued that "living in harmony" and "feel[ing] connectedness with nature" as addressed in the kindergarten curriculum could be interpreted as intrinsic values. In the school curriculum the idea of "experience[ing] nature as […] source of […], joy" could be interpreted as intrinsic value. Concerning the teacher educator perspective, it seems like part of the relational understanding presented above is related to acknowledging the intrinsic values of nature and friluftsliv. In this context, both Jens and Annette point at love as part of care for nature. Annette explains this by saying, "because you appreciate the beauty about your nature". She understands that connectedness has something to do with "look[ing] at nature as part of me, like Arne Næss is saying with the ecological self, […] I identify with nature so when I do that, I will take care of nature." In this context, she points out that she is currently exploring what it means to "look at nature from the inside" and not through a human agenda. This resonates with Andreas who finds slower and simpler forms of friluftsliv bring nature to the fore and, thus, support care for nature:

> So, it is important, and for me it has to do with slow friluftsliv and getting nature experiences in the foreground. That has contributed and been a bit important for me in bringing it [nature] out more and thinking more about how we actually prepare and facilitate so it is also central in what I do and not just something I take for granted. (Andreas)

5.2.2 Visions: Engagement with nature, involvement of community and teacher candidates, multi- and interdisciplinarity

This chapter describes the teacher educators' visions for nurturing care for nature in teacher education on the basis of their values and perceptions as outlined above. It is organized in four sections including visions an engagement with nature, community involvement, teacher candidates' involvement, as well as multi- and interdisciplinarity.

Engagement with nature (g): "Experience and learning through practical actions." All participants envision a teacher education that supports a practical and reflexive engagement with nature that relates to educational praxis as future work environment. However, a difference appears between representatives of the two contexts. While practical and reflexive engagement with nature can be described as central to Jens and Simon's vision, this idea is a sidenote in the greater picture of interdisciplinarity as vision presented by Karin and Andreas (see theme j.). Representing both contexts, Annette mentions both themes equally.

In terms of practical engagement in nature, Jens specifies that he sees a teacher education that provides experiences and development of skills in friluftsliv activities. In this context, he points out that "they [the teacher candidates] must feel the body, and they must have different experiences in friluftsliv, and they must also be able to use these experiences when they start working as kindergarten teachers". In a similar vein Simon and Karin highlight the importance of contextualisation and exemplification in relation to place and profession. Simon

envisions practical work in nature in terms of working on cases relevant to educational praxis of kindergartens but also schools:

> So, a type of involvement, that the students can be active in the preparation and […] a type of explorative learning, where they can work with cases more so than […] with types of activities […] for example, someone gets hurt on a trip, make a case where someone gets hurt and then think how we can solve this when you get into kindergarten or school. So, transferring to practice. (Simon)

Considering school-based teacher education, Karin emphasizes that this is relevant for all disciplines and by that draws a picture of teacher education that addresses nature multidisciplinary (see theme j.). However, she goes on to say that she does not believe "that all teaching should be outside" because of students' individual differences both on the level of school and teacher education. This resonates with Annette, although referring to her current work in school-based teacher education she admits, "the reality is quite different for me in my work, but if I could choose, I would have done it quite differently". As she goes on, she specifies her vision of combining "friluftsliv and nature with storyline […] to live stories and make up stories and tell stories". Annette explains this by saying, "because I think the stories are an important thing connected to nature. In a way, I think that stories are nature's language". Her statements make clear that this vision is not a reality in her teaching yet (see chapter 5.4.3). This vision differs to the ideas presented so far as it employs stories as forms of expression and cultural representation. In her further elaborations, she also connects the friluftsliv-nature-storyline approach with elements of community (see theme h.) and interdisciplinarity (see theme j.).

While all informants have made a point of reflection in other sections, only Jens and Simon refer to it specifically when talking about their vision. Jens points out that it is important to "to get students to reflect on sustainable development". He sees this as relevant for the teacher educators "own development" to enable them "to take it into their own work as kindergarten teachers". As pointed out in chapter 5.3.2, Simon sees these practical situations as point of departure for reflection. In this respect he envisions a teacher education that fosters discourse competency by exploring experiences verbally and connecting them to academic as well as educational contexts:

> So, it is one thing with experience and learning through practical actions, but it is also very important to enable the students [teacher candidates] to reflect on those experiences and write and put into words the experiences they have so that there is a connection between what happens in the field and what happens in academic assignments. And this is preferably across subjects" (Simon)

Both of Simons' statements hint at the fact that, like Annette, he links his vision of practice and reflection in nature with elements of community (see chapter h.) as well as multi- and interdisciplinarity (see chapter j.) in his further elaborations.

Community involvement (h): "Learn where life is." Simon and Annette's visions include community involvement to create authentic educational contexts in teacher education. In terms of learning in nature, Annette states:

> I think we should absolutely bring the [sic] learning outside, not just in nature but also in culture to learn where life is, not just learn it inside the classroom and in books, so that's a vision, but the reality is quite different for me in my work. But if I could choose, I would have done it quite differently [sic]. (Annette)

In this quote, Annette expresses that learning in teacher education should not only be situated in natural, but also in cultural settings as this is more representative of life than just working with books. Simon envisions the inclusion of other teachers as well as children in his teacher education. He elaborates that his students "should meet teachers who have competence in being outside, who enjoy being out and have places they feel safe in and can show the students". Moreover, he points out that him and his colleagues are increasingly considering "to involve children on trips in teacher education, […] to see how the activities in teacher education are relevant in the profession". In this statement he hints at the authenticity that is created through the presence of children. This resonates with Annette, who reports about projects outside of the teacher education contexts, where she could experience this as valuable (see chapter 5.1.2).

Teacher candidate involvement (i): "Creating new practice together." Besides community involvement, teacher candidate involvement arises as vision from the data. This relates to statements from Jens, Simon and Andreas evolving around increasing independent work and inviting teacher candidates to take influence on their own teacher education. Simon points out that teacher candidates "should be allowed to get involved in what is going on in the planning, in the implementation, in the follow-up". This must be seen in context with his elaborations on casework as described in section g. Simon's vision asks for a higher degree of responsibility for the teacher candidates in processes defining their own teacher education. This also relates to the opportunity of implementing more self-organised trips as pointed out by Simon and Jens (see chapter 5.1.5). Furthermore, it relates to Andreas' approach of involving teacher candidates for the purpose of "creating new practice together" as touched upon in chapter 5.5.1 (Andreas). All these references show that the vision of teacher candidate involvement is already somewhat implemented in the teacher educators' praxis.

Multi- and interdisciplinarity (j): "A shared responsibility." Four of the informants mention multi- or interdisciplinarity in their visions. As pointed out above, this issue was particularly strong in Karin and Anders' vision who represent school teacher education. As outlined in section g., Simon's vision on learning case-based through practice and reflection includes an element of interdisciplinarity when he says that "this is preferably across subjects". He exemplifies that this can be addressed by linking experiences with the different subject disciplines in kindergarten teacher education: "Whether it is in my case physical education, but also in mathematics and natural science, that they see the link between the practical experiences and can link school subjects to their experiences. Working interdisciplinary is also a factor in Annette 's vision. This becomes clear when she specifies that she does not only aspire to "doing storyline outside, outdoor, best of all in nature" but "also cross-disciplinary". She explains that to her this means working "holistic[ly] in the way that I don't like […] the way we are splitting up life in different subjects". However, comparing her experiences from kindergarten teacher education to her present work in school teacher education she highlights: "Of course, it's much easier to do things like that in kindergarten teacher training". This resonates with Andreas' observations on the difficulties of interdisciplinary work in the school context as outline in chapter 5.1.3.

What Annette feels as difference between kindergarten and school teacher education might be the reason why Andreas and Karin focus on the matter of multi- and interdisciplinarity in their visions. In this context Karin elaborates that reaching outside should be aspired to across fields:

> The dream scenario is that all disciplines in teacher education move out of the auditorium and out of the classroom, out of the special room and are in nature, as a way of exemplifying and maybe also situating their own field in place. (Karin)

Andreas adds to this by envisioning "a shared responsibility for us as educators in relation to achieving such a type of vision where we train teachers who not only have knowledge and awareness of but who actually have a commitment to [nature]". In addition to a responsibility on the teacher educators' side, as also included in Simon, Annette, and Karin's visions, Andreas' vision emphasizes the outcome of such an approach on the side of the teacher candidates.

5.3 Integration

This chapter presents the teacher educators' reflections on how they plan their practice to foster care for nature in teacher candidates. My analysis surfaced five areas of consequence including curriculum, competencies, pedagogy, institution, and nature. The subsections are organised accordingly.

5.3.1 Curriculum: "friluftsliv in different places", "sustainability" and "pedagogical philosophy"

The topics touched by the teacher educators in connection with care for nature are wide and include nature and the environment, sustainable friluftsliv and transport, physical activity and movement, health, as well as forming professional values and attitudes. Jens connects care for nature to friluftsliv as an aspect of the subject area "called nature, health, and movement […] that is where we have our […] tours and our activities in nature". He identifies this field as the one he works with. In this context, he specifies:

> the arena where you can develop it the most, that is when we are on different trips. Next week I'm going on a three-day winter trip. […] And then, we focus mostly on the students getting their own experiences of being on a trip and practicing friluftsliv, even though in a way we do not focus so much on leaving no trace when the students are on a trip, that is what is always underpinning the trip. (Jens)

Additionally, he sees care for nature connected to the topic of sustainable development which he locates in the subject "science and environmental studies". Simon also connects care for nature to friluftsliv activities, however not in the sense of a tour but rather in the context of a three-day event which focuses on matters of organisation and planning, safety, as well as teaching different subjects in the area:

> We go, for instance, to an area that is in the school's local environment, a bay like a type of recreation area, right in the beach zone and there we are three days, and we give students training in safety around water with it to swim and that with rescuing and assessing the dangers around the area. And then, we set up tents and the students. They have been involved in this in advance and planned for us, it is a bit of the tasks is that we will receive a kindergarten on the third day. And then the students will have a program that involves water safety, that involves mathematics and arts and crafts. So, if we tick off the first part of it with care for nature, then it is that it is in the local community. We can use public transport to get to it and we can go to this area and there the kindergartens can also be invited. (Simon)

As he goes on, he explains that in this context, he also covers issues such as transportation and travelling short distances, local food, and cooking, using little gear, evaluation of surroundings and facilities (Simon).
Karin sees care for nature particularly addressed in her teaching when it comes to the topic of "nature experience", both in terms of "practical skills and theoretical knowledge" as well as "attitudes and values as part of their knowledge". She connects this first and foremost with friluftsliv activities, as this kind of knowledge "is created [...] in different places in nature at different seasons". Based on this she concludes "then I think we must include a practical part connected to the friluftsliv in different places". As she goes on it becomes clear that this includes day activities, such as "ice-bathing", but also tours such as "four-day bike ride, [...] four days winter trip in the woods, making snow trips" as well as "building [and] developing outdoor classrooms". Andreas addresses care for nature through the topics "sustainable friluftsliv, sustainable modes of travel in nature, we talk about nature's vulnerability, we talk about leaving nothing but footprints". In this context he "tr[ies] to limit all forms of transport and in that way it becomes important to identify, see, experience the richness in the local surroundings."Annette explains that she is "not in the position to bring students [teacher candidates] outdoor all the time because it's kind of a different education and it's not an outdoor education". Instead, she connects care for nature to a philosophy that stands behind all her teaching, and specifically to the "first year" in the context of teaching "pedagogical philosophy and didactics". Additionally, she connects care for nature to the three overarching topics, "that's sustainability, democracy, and life mastery, just as in in kindergarten, so when we do this project [two days outdoors] we will link it to these interdisciplinary topics".

5.3.2 Competencies: "Skills to be able to take responsibility"

The teacher educators mention competencies in basic friluftsliv as well as in critical reflection as relevant for care for nature. To nurture care for nature, Jens especially focuses on competencies that enable students to be on tour and thus in nature for a longer period. This includes "that the students should be able to take care of themselves and be able to be comfortable and to avoid, for example, getting too wet and cold". To Simon the overarching competence is that teacher educators need to develop basic skills for being outside and engaging with nature as well as abilities in reflection. This is to be able to create safe and engaging situations in their future work environment that also relate to the curricular framework:

> They [the teacher candidates] have some practical experience to be able to take responsibility for children. And then they have also started to get a basic competence [...] with the canoe, with setting out fishing nets, making a fire, setting up tents. So that they have the skills to be able to take responsibility for the activities. And then, I think in extension of that, there was a reflection on the activity [...], where we ask a bit about sustainable goals that were achieved on the trip. And this is where they connect the experiences they have made to sustainable goals. (Simon)

To Annette competencies relevant to care for nature lie in the ability to form and express personal ontological as well as epistemological believes on the path to developing a teacher personality. She explains this by highlighting the importance of values and attitudes as basis for actions, and thus also educational actions as relevant for teacher candidates. In this context, Annette problematizes the focus of the curriculum on cognitive performance and ability and argues that these things cannot be seen in isolation from underlying values:

> All our frameworks lately has [sic] been focused on knowledge and skills. So that's why I think it's very, very important to remind people of our attitudes, the approaches and values that always will be there behind the knowledge and the skills. You can't separate them. (Annette)

This resonates with Karin In addition to basic friluftsliv skills and reflective abilities on values and attitudes, she highlights that teacher candidates must extend their understanding of nature. She explains this as follows:

> if I always take my students with me, sitting on a bus, driving far away, yes then nature is over there. But it must be close to school or close to where they are daily so that they can understand it as more than just nature that is over there, something to take care of that is in fences, or on mountain tops. They must understand that nature is more than that. (Karin)

Like Simon, Andreas addresses basic competencies in sustainable friluftsliv and journeying in nature. According to him, "it doesn't crave much competence". To him, it is necessary to be able to identify what is alive and what is dead in nature, basic skills in day trips and overnight trips. In this context, he points out that these trips do not have to be very craving as they focus on leaving no trace. Furthermore, he mentions the ability of reflection for in-depth learning. In this context he finds it "important in relation to building a natural relationship, that you actually become aware that you have vulnerable nature right outside, that it is not something that is only on Svalbard or Antarctic Arctic".

5.3.3 Pedagogy: "Being in nature for such a long period of time, that leads to building a relationship to nature"

Outdoor learning is the preferred pedagogical approach of all teacher educators in terms of nurturing care for nature. To Jens, employing outdoor learning is imperative in approaching care for nature. He "find[s] that just […] being in nature for such a long period of time, that leads to building a relationship to nature". In this context, Simon emphasizes that care for nature must be approached in progressive steps. This is because some basic skills need to be acquired before teacher educators can take more responsibility and become involved in the planning, organization, conduction, and evaluation of tours. Speaking about the three-day set up as portrayed above, he states, "We do this in the third year. So, in a bachelor's this is the last year. So, I think it fits there because by then they have gained experience" (Simon; see chapter 5.3.1). Annette regrets that her work situation does not allow her to employ outdoor educational approaches (see chapter 5.3.4 and 5.3.5). Instead, she uses a form of pedagogical philosophy that allows her to include elements of care for nature in discourse and reflection with the teacher candidates. In this context, she leads her students to reflect on "the wholeness in the world", encourages developing "our heart or head and our hands, if you can say it in that way, your knowledge, your attitudes, your skills".

Karin's program is split in an online and an on-campus part. When on campus, she implements outdoor learning repeatedly throughout the year. Within that frame she describes her approach "largely inductive […] exploratory, problem-based teaching". In this context, she aspires to helping the students "built up some kind of relationship through and for nature that they can take with them further". Andreas also employs a form of outdoor learning that helps "identify, see, experience the richness of local destinations" in his approach to care for nature. To him,

this involves “make[ing] active choices” in the way he approaches natural spaces in his program. Against this backdrop, his pedagogical approach restricts transportation and focuses on “leave[ing] nothing but footprints”. Furthermore, it includes the principles of “slow progression” and repetition. In this context, he points out that he considers that tour in different times in the year require different competencies from the teacher educators:

> I am very aware of when I make trips this year, and how long the trips this year. Because there is a big difference between going on a winter trip in February and going on a winter trip in early April. So that, for me, it is very important that we build stone on stone, slowly, and that the students are involved in the process, and always have such a type, call it slow progression and mastery based. It's not very important to me that it should be very challenging on this, not when we talk physical exercise somehow. (Andreas).

5.3.4 Institution: “Time - […] if you were to make it even more optimal then that would be what has the greatest significance.”

The institutional framework poses some limiting factors in terms of time in nature and cooperation with other institutions. When it comes to time in nature, all kindergarten teacher educators feel restrictions from their institutions (see chapter 5.3.3 and 5.3.5). Jens points out that time in nature is important for kindergarten teacher education because “making trips in nature is a common activity in Norwegian kindergartens”. In this context, Jens identifies this issue as “what has the greatest significance” to “make it even more optimal”. Institutionally restricted time in nature is also a factor in Annette’s current situation as teacher educator in the school context. In accordance with the institutional framework for her subject pedagogies, Annette locates care for nature in the first study in her subject pedagogies. Furthermore, she points out that this framework does not allow her to teach outside very much, which means that she mostly teaches from the auditorium. Contrastingly, the school teacher educators Andreas and Karin do not feel restricted in this matter. Andreas explains this by hinting at the “strong position” friluftsliv holds in his institution; rather he points out that this is a problem in schools:

> We have been able to offer our students specialization in outdoor life and now we are working so that they can take future teacher students can take a specialization year in outdoor life so that, in that sense, it is very convenient for students to acquire a lot of outdoor life. […] It has been a criticism that the physical education subject is a bit marginal in relation to being able to teach outdoor life. So, the two-hour subject, where a continuous subject. It is a big subject in school because you have it for all 13 years. But it's still just a two-hour subject. (Andreas)

This suggests that there is an opposite imbalance in kindergarten compared school teacher education: Kindergarten teacher candidates spend less time in nature during their training, while the kindergarten context allows more time. The opposite is the case in for school teacher candidates studying physical education or taking a focus year in friluftsliv. These students spend more time in nature during their training, while the school context is more restricted in this regard. Nevertheless, Karin’ implementation of outdoor learning is restricted to the on-campus phases of the institutional set up of her program, which is supplemented by an equal amount of online-time. This way, according to her, “50 percent of the education takes place outside”.

On a different note, the inclusion and cooperation with other institutions also appears to be restricted. Simon and Andreas both point out that such cooperation is mostly limited to internship-phases. For instance, Andreas explains that during this time, teacher candidates get in contact with “organizations in guiding and tourism, nature-based tourism, and there are schools, kindergartens, friluftsliv organizations, yes, you name it, really quite

broad". Additionally, Simon points out that during the three-day tour implemented that he organizes in year three, they also cooperate with the "landowner, in this case it was the friluftsliv council" and a "local museum nearby that has exhibitions of fishing gear […] and boats going back to at least the Viking Age and up to today".

5.3.5 Nature: "There is vulnerable nature right underneath the living room window"

All teacher educators implement care for nature by teaching in local natural areas. However, some differences can be detected. Jens includes local and wider surroundings outside the urban area that his institution is situated in. These include "forest, […] some high mountains, and some snow and water". Nevertheless, he emphasizes, "we are well not that much outside". In this context he explains that outdoor learning only takes place on five to ten days each year adding up to about 30 days over the course of the three-year study program (Jens). Simon plans his teaching in "local environment", for instance, the three-day program in third year for instance, takes place at a costal "bathing area" close to the institution. As pointed out above, Annette is "not in the position to bring students outdoor all the time" and teaches mostly from the auditorium. Karin continually teaches her on-campus classes outdoors in local areas during the different times of the year and in different places. For instance, she mentions a "lake right behind, […] maybe [a] two kilometres to walk" away, and an "outdoor classroom which is right behind the university". Additionally, she includes the "nearby mountain and river areas […] within a one and a half hours' driving distance" (Karin). Andreas makes a point that "there is vulnerable nature right underneath the living room window". Consequently, he includes local and urban areas of "vulnerable nature, nature reserves and other natural areas with varying degrees of protection".

5.4 Realisation

This chapter displays the teacher educators' reflections on concrete choices and actions that express and nurture care for nature in their practice. Because realisation is a consequence of the implementation, I address the same areas of consequence in this chapter as in the previous one.

5.4.1 Curriculum: "We have curricula that encourage"

As displayed above, the core curricula offer many starting points for the teacher educators to realise the objective of care for nature. Annette explains, that to do a small-scale outdoor learning project next semester, she, and her colleagues "stretch the curriculum. We interpret it in a way so that we can do it […] And that's what I've been doing all my life. Watching for the gaps and all the things that can be interpreted in different ways". This shows that to realise an agenda such as care for nature, teacher educator must have skills in handling and interpreting the respective curricula. In this context, Annette refers to Goodlad's (1979) *Curriculum Inquiry* which she finds helpful for this task. In the following section, I look at some examples how this can be done in terms of supporting the development of relevant competency.

5.4.2 Competencies: "Just a few moments to show how we think both sustainably and show care for nature"

Jens specifies the activities that he incorporates in his programs to develop the competence of staying comfortable on tour. On the example of a winter tour, he clarifies that this includes "ways to make an emergency bivouac in the snow, we focus on different forms of housing out in the winter and all that then is about being able to feel good while they are out for a long time" (Jens). Simon explains the role of basic friluftsliv competency and how it is approached in the context of a three-day trip:

> You must have competence, there we use canoes to get out to, they get trained in using canoes and safety around it, and putting out [fish] nets from canoes because […] when the children come the third day, then it's the students who are going to take responsibility for the children when they go out to get the nets […] So, when they paddle out, they have to take it up from the lake, and then paddle in, and then they have to take the fish out of the net. This is part of experiential learning. So, they […] are invited and they are allowed to take responsibility for the children and do those activities. And then they make bonfires and fry the fish on the fire. So being able to prepare the food yourself, being able to use food that is harvested locally. Don't have to buy the food. We picked it up at the spot. So, these were just a few moments to show how we think both sustainably and show care for nature. (Simon)

This quote also shows how specific activities, in this case canoeing and using a fish net, can be a realisation of sustainable development and care for nature as required in the core-curriculum. Karin refers to activities in a similar vein. This includes ice bathing, building a fireplace, warming stones, and setting up a sweating hut, building up outdoor classrooms, and going on different tours. On the example of developing an outdoor classroom, she explains in detail how she approaches this competence:

> For example, developing a camp or an outdoor classroom. That means finding material to make tripods and sitting benches. It means making a fireplace and food, kitchen area and then there is the development of how you can be here with children and young people when it is raining or snowing. Then there is also making different types of roof constructions depending on what equipment or materials are available. How do you organize such a type of outdoor-classroom with respect to children and young people's learning, inclusion and participation with the students' safety in mind? (Karin).

Andreas adds that such "relevant skills and knowledge come from repetitive practice. So, to light a fire you have to practice sometimes to feel that you can do it". Furthermore, he highlights that it is crucial to focus on developing skills in a way that has little environmental impact and reflecting on this, too:

> Also, it is not only to light a fire anywhere, and it can be done without a trace, but it can also be done, yes, with lots of traces. So, there is also something to problematize, I think. While this may be a bit like that, this is the shallow level of a type of environmental awareness, right. What does it look like for us? Another thing is the more in-depth. What does it do to me as a human being in relation to the value priorities I advocate in my life in general? (Andreas)

These four examples show a focus on competencies that allow teacher candidates to be in nature. The activities serve the purpose instead of being the purpose. In addition to the development of such fundamental skills, Andreas shows how awareness for vulnerable nature can be created by experiencing and addressing existing paradoxes in our relationship with nature as they play out locally, even in urban areas:

> If friluftsliv is to be a bit of a counterculture, the way we are in nature should be somehow environmentally friendly and sustainable, then it is not insignificant how we behave and are in nature. And it's a bit about how we deal with it. And I think that has also become more important over the years. It is paradoxical that we are in nature and then a forest machine has gone and cut down the whole area, right? Quite brutal, and then we go in next to it and then we say, we will try not to cut down living trees. Are you with me? It can be experienced as a bit paradoxical. But I think it is a pedagogical

> point to prove that it is entirely possible, and I think it evokes something in us because we are probably used to a tradition where we can cut down trees, at least some dimensions of trees, we can cut down spruce, right, for spurce products to sit on. So, to become aware of these things here and actually make active choices, where we try as much as we can to leave nothing but footprints. That I am an ambition I have." (Andreas)

This form of engagement with nature then is focused on experiencing realities and reflecting upon it. This seems important for the teacher candidates to form a position towards what is happening in the world, but globally and locally. This relates to Annette's ambition of developing a worldview as well as personal values and attitudes related to education and learning with the teacher candidates. She does this by giving impulses for a reflective process in three steps:

> I'm starting from inside. What do we think? What do we feel? What do we do, and what's the meaning of life? Because that's the core question for anyone but especially for teachers who's [sic] going to help young children to find their way in life. I think that's some very important question […] and then you add the next layer, which is my body, my social way of being, and then you add another layer, which is me as a human and me meeting other human beings, and in a meeting with nature and cultures. (Annette)

In terms of the teacher profession, the latter then also includes more focused questions on the teacher personality: "What is the meaning of being a teacher? What kind of teacher do you want to be? […] most important is maybe the attitudes or the values […]." Furthermore, she points out the importance of "connect [ing] values to what is the meaning behind education, behind learning, behind being a human and things like that (Annette).

5.4.3 Pedagogy: "Do it with the students, not for the students"

Jens specifies pedagogical decisions in terms of distributing tours throughout the course of the three-year program and including different seasons, namely "autumn and winter" as well as "slightly different natural environments". In terms of optimizing the amount of time the teacher educators have in nature, he reflects on the possibility of employing independent student-tours "to an even greater extent". This would involve "give[ing] the students tasks where they have to do something, and then perhaps, reflect on certain things afterwards. We could have done a little more of that" (Jens). Such an idea is also mentioned by Simon. This issue must be seen as consequence of a limited teaching as defined through the institutional framework (see chapter 5.4.4).
Simon expands on how he sets up the work on cases for the teacher candidates to facilitate an explorative and practical pedagogy that is oriented on problem-solving. This includes providing guidelines, that support them but leaving space to give them responsibility:

> Planning, executing, reflecting tour. Working explorative and practical on solving a problem, developing a case: they get some guidelines, it should be three days, there should be three subjects, for example, and there should be that age group, and then so and so many children. And then the students work in groups to prepare their own type of case, so they work with the children when they come […] and then they report on this afterwards in a text.

Additionally, he points out that this way of teaching calls for educators who dear to invite the unexpected by granting more control to their students:

> There must be teachers who are […] open to the unforeseen, true, you have to take some risk because when you go on a trip where you have to get the students' eyes on nature, then things can take time, like I said that if they are going to sit around and write poems and things like that, then you are in a way a bit insecure because you do not have the direction yourself, you let go and the chaos is a bit loose. So, it is the students themselves who are activated. So, you have to have

> teachers who dare to let go of some control over the teaching plan and to involve students and allow them to discover nature and get asked questions by nature. You have to trust that all goes well in the end because it may seem a bit chaotic when you stand in it, but it's worth it. (Simon)

Annette explains that she approaches her philosophical reflections by including different forms of arts, drama, poetry, songs, and music. However, she emphasises on using storyline as her favoured pedagogical approach. She explains what it is on the example of a project that she was involved in as a researcher:

> The storyline way, […] you have the story: "Once Upon a time", then "one day" and "happily ever after", that's three main parts of the story. So, we did those [in a story of the life tree] and what brought the story further was these open key questions, or wonder. I wonder who is living in the tree of life? And who is the tree of life? And what's happening in the tree of life? And so, this was made in the classroom. But we also went for walks outside and did nature science things […] and fantasy things on the other side. So, it was a great project. I mean, the main purpose was to let the children be aware of the concept of my ecological self, because you made the tree together. Everyone took part and after that we asked the question[s] And then every child, […] crafted their own creature, and the creature lived inside the tree and they made a house for them in the tree, and other things happened. (Annette).

In this context, she emphasises the importance of working together on every level. This means that teacher educator, teacher as well as the children are involved in the same project, within which they each learn something new on their level. Annette underlines this by saying, "we learn from each other". She regrets that applying this approach so far has been the exception in her teacher education program. Referring to her current in teacher education for school, she hopes to implement this in a project that she has planned with another colleague: "I hope for the next half year with my students, together with my colleagues in Norwegian and mathematics. So that we can make a very different year, hopefully based on storyline, […] and that we can be outside". Like Simon, she points out that implementing such an approach requires "being brave together" and "do[ing] it with the students, not for the students". In this context, she experiences that knowing her values and position helps her in this regard: "As I'm getting old, I get more brave, because I don't care so much [laughs], because I know what I am and I know what I believe in, and I know that I can argue for my choices". Also, Karin explains why being brave and facilitating such approaches is important to the agenda of care for nature as she understands it:

> If we believe that, as I believe, the core-curriculum invites us to leave the classrooms, yes, then we must take our teacher students out of our auditoriums, because we must be exemplary and we must be as close to practice as we can. Because situating teaching, or doing it in nature, people do not automatically do that. It doesn't just happen. So, the type of care for nature doesn't just happen to our teacher students unless we as teacher educators focus on it.

In this quote, she argues that because the consequences of the new core curricula must be drawn at the level of kindergartens and schools, they also must be realised at the level of teacher education. She explains this by saying that teachers must first learn how to relate their lessons to nature. This then, is a responsibility of teacher education. Furthermore, Karin emphasizes that "we need to have research that says that teacher educators must be exemplary and practical".

When it comes to Andreas and his pedagogical approach, he feels that "what is obvious to mention is slow friluftsliv. The way I have worked with them [the teacher candidates] so far is largely about didactics for nature experiences, nature presence, nature relationship, and how to facilitate it". He, too, engages in what can be

described as a co-creative exploratory process between teacher educator and teacher candidates to develop different ways of being in nature:

> I have been inspired by the students, because I sometimes give students assignments where they have to develop teaching, or they have to create a trip and then some created trips inspired by sustainability and the green shift, and in that they take it a lot longer than I do. So, I have to say that it is a way of working where we may co-create the new outdoor life for the future then. Where we can somehow, explore the possibilities. And then I think that, in a way, I'm a little preoccupied with it, but I still have a lot left to do. (Andreas)

This shows that he too, experiences involving and granting control to the teacher candidates as fruitful. However, he acknowledges that there is a lot that has not yet been actively addressed and sees more potential for development. His elaborations on this involve the institution as area of consequence, which I will return to in the next section.

5.4.4 Institution: "We must manage with what we have"

Drawing on their experience with the different challenges arising from an institutional dimension, the teacher educators take consequences in dealing with the distribution of resources as well as systemic challenges. In consequence of the restricted time in nature for kindergarten teacher candidates, both Jens and Simon see a possibility in including the pedagogical approach of self-organised tours excluding the teacher educator. Jens points out that this is the "most realistic" option, since he and his colleagues "do not experience being allocated more resources" (also see chapter 5.1.5 and 5.4.3). In this context, Karin highlights that change in an institutional context is slow because educational habits reproduce themselves. In this context, she points at the different existing traditions in the various disciplines in terms of including outdoor learning which in turn have an influence on how much experience educators eventually acquire with, and how safe they feel in it.

> All these different academic traditions have something to do with the practice at the university. And then you have some teacher educators who are academically educated, who have not been to a classroom, or brought children and young people out. Then you have the teacher educators who have worked a lot in school, also there are very different backgrounds in the teacher educators. […] I want the Norwegian teacher to understand that they must go out and have teaching outside. That requires that also the teacher educators are trained to understand that they must go out and that nature is important for children and young people's vocabulary for example. […] Nature science goes out, they have a tradition for it, social studies go out, they have a tradition for that. Mathematics then, for example, or pedagogy in teaching, takes place in auditoriums. […] But yes, then you know that the teacher's experience of security when he goes out, it disappears, because they no longer feel they have control over the teaching. (Karin)

It seems that this institutional circle might be one of the main hinderances for the ambition of an interdisciplinary approach to such matters as care for nature as expressed by Andreas (see chapter 5.2.2). In this context he highlights that the field of "physical education has a responsibility to explain to their colleagues what friluftsliv can contribute" (Andreas). As he goes on, he also draws another consequence when he explains that his approach focuses on simplicity, re-use and using little resources to stay true to the reality of the school context:

> Equipment is also such a classic theme, right, […] And there, too, I am concerned with re-use, and what we need in a school context is very little advanced, and we must manage with what we have. So, in that way it is grateful to work in school because there we are supposed to include everyone with the resources and conditions we have. So, for me it is very natural to think very simple and craving little resources. (Andreas)

When he says, “here too” he refers to saying the same thing in terms of acting sustainably. This way, he shows how the limitations of institutions can also have positive effect on nature by restricting access to material and resources.

5.4.5 Nature: “There will be impulses around that will challenge us in various ways”

As my descriptions above show, nature in all its shapes and forms, but particularly local environments, have a lot to offer in the teacher educators’ pursuit of nurturing care for nature in teacher candidates. This holds true in terms of realising curricular requirements on topics and competencies through experiential pedagogical approaches as well as dealing with limited resources in terms of money and time by limiting travel, but also gear. Additionally, Andreas thinks that nature itself might create the helping factors that will make radically different choices and actions a necessity:

> In fact, it is a bit urgent to realize this vision [commitment to nature], yes, it is. And it will probably force itself forward. If we do not manage to push this forward fast enough ourselves, there will be impulses around that will challenge us in various ways. Well, I'm pretty sure of that. (Andreas)

He makes a bigger point out of this which is captured in more detail in chapter 5.1.4.

5.5 Evaluation

This chapter distinguishes between evaluation strategies as process and product of the teacher educators’ practice as they relate to assessing care for nature. Overall, the teacher educators display varying degrees of realising and specifying evaluation. Only Simon mentions precise criteria in this context.

5.5.1 Process: “Looking at practical actions”

Four out of five teacher educators mention evaluation strategies that are integrated in the teaching process. These include observing the teacher candidates’ behaviour in nature as well as their focus in conversations and choices in their educational journey. Jens does not include any “type of formal assessment” to evaluate if he is meeting the goal of nurturing care for nature in his students. Rather, he observes this by paying attention to the teacher educators’ behaviour on tour. This way, he can “guide them” and see if they integrate the value of leaving no trace in the way they engage with their surroundings (Jens). This resonates with Simon approach. However, he mentions some specific behaviours that he would understand as expressions for nature. This includes leaving no trace, cleaning up, tending to, and repairing gear as expressions of care for nature in the teacher candidates. In this regard, he formulates questions that could be asked for assessment:

> It is possible to assess, have they made interventions that were unnecessary? When they make a fire, do they just go to the nearest twigs to find sausage sticks, or do they think of nature where they should thin out without it becoming very visible? And how do they leave the place after they've been there, do they clean up? So, a bit of criteria for adopting an attitude as it relates to practice. How do they wash the canoes afterwards? Do they treat them well? Do they repair if something breaks? Do they show the consideration for that they will be used again, that it is not just use and discard? Such things. So, it's kind of the treatment level and we discuss that a good deal, because I think action is a good starting point for discussing a little deeper values. And then there is the assessment of whether their values have changed or not, I think, then I need maybe three years to follow the students over a long period of time. There you can evaluate more such type of radical value changes. So, it's a little hard. So, it’s more looking at practical actions. (Simon)

He emphasizes that it is more difficult to estimate the successful development of values as this is a longer process. For this reason, he finds looking it more actionable to look at concrete actions. Annette believes "the close relationship and the dialogues is the, is the way." In this regard, she says that she has been criticized for "being to close", nevertheless, she believes she "can't know, evaluate without being professionally close". Karin also mentions that care for nature can be assessed in "conversations and varying tasks". However, neither Annette nor Karin explain which elements would be relevant to assess care for nature in these respects. Andreas sees his efforts of "involve[ing] the students in thinking new with me, creating new practice together" as evaluative process that is more generally integrated in his teaching practice. Nevertheless, he sees more potentials, which I will elaborate on in the next section.

5.5.2 Product: "When they later take their students out with them, that means they have learned something"

Karin, Annette, and Andreas discuss conclusive evaluation strategies as a way of looking back on their practice. Conversations and "on-to-one talk" as mentioned by Annette and Karin above can include conclusive exchanges, for instance at the end of a course. Additionally, Karin mentions student choices in exams as another option for evaluating care for nature. In this regard, she talks about an exam situation where "the students were given five cases to choose from, some of which were cases that were linked to nature and friluftsliv, and [...] some that are connected to completely different things". In this context, she understands the choice "to go into those cases and problematize those cases" related to nature, friluftsliv and use of nature as expression of care for nature. However, she finds the "strongest evidence" for changes in the teacher candidates' understanding of nature, learning and education is their practice later in their life as professionals:

> I see that we have in a way perhaps changed their [the teacher candidates] perception of what nature is or how they think about nature and children and young people's learning and education, that is when we visit our former students in their practice and see that they have developed practices that extend over several years, linked to taking children and young people out and that it runs through their practice. (Karin)

She explains that this happens when her current students assume their practice phases in different schools. In this context, she says, "when they later take their students out with them, that means they have learned something" (Karin). Andreas considers becoming even more active in evaluating if his practice meets the goal of nurturing care for nature. To him, the consequence of this would be to "signal to the students that I want to be more ambitious in this area - give me feedback on how this can be developed". Nevertheless, he feels that he needs to keep a balance between maintaining and developing his practice to prevent burnout:

> I'm kind of a fan of hurrying slowly. I like to preserve and keep what works, but at the same time I want to be in development. But that just means, for my own part, not to get burned out and tired at work. (Andreas)

This shows that evaluation always sends impulses for development of educational practice. The predominantly vague responses I received in this respect suggest equally vague evaluations on the teacher educators' part. This might point at a lack of strategies to actively and consciously develop the programs to nurture care for nature in teacher candidates.

6 Discussion

In this chapter, I contextualise and discuss my findings on the backdrop of previous research and literature and refer them to my research questions. Furthermore, I reflect on the limitations of this research and delineate new question arising from this project. This research set out to answer the questions, (1) how teacher educators understand and use nature and friluftsliv in their work to nurture care for nature in teacher candidates, and (2), which factors help and hinder this objective. Bearing in mind my own experiences as outlined in chapter 1.1 and the implications and limitations of current research as outlined in chapter 2, I formed different expectations. In terms of my first question, I suspected that care for nature might not be systematically addressed by the teacher educators, but that they could take a stance to this issue and locate instance of it in their practice. Furthermore, I suspected that instances of learning in, with and through nature might be scares, and I was not sure, if and when such instances would be considered to be friluftsliv. In terms of my second question, I expected that previous findings from educational research could also be confirmed in teacher education. Moreover, I was curious to see how these matters take shape in the context of Norwegian teacher education. This refers to research suggesting time as number one challenge, and teacher education and cooperation as giving rise to actionable opportunities for different forms of outdoor education (cf. Aikens, 2021; Leirhaug & Arnesen, 2016; Winks & Warwick, 2021). Furthermore, I anticipated that the teacher educators have found some interstices within the institutional framework to include nature and friluftsliv in their practice. In this regard, I also assumed that there are less obstacles to nurture care for nature in kindergarten teacher education. My research can confirm nuances of these assumptions, while surfacing some unexpected findings. I will pick up on this in the following discussion. First, I will examine my findings on the backdrop of the conceptual framework presented in chapter 3. Second, I will contextualise my lessons learned from this study within the discourse of previous literature and research as outlined in chapter 2.

6.1 SPIRE

In this section I take a closer look at my findings considering each chapter of the SPIRE aspects and discuss them on the backdrop of my conceptual theory.

6.1.1 Situation

This aspect refers to my second research question, as the teacher educators reflect on challenges and opportunities for nurturing care for nature in teacher education based on their professional experience. This is where *situation* refers to the substantive domain *experiential curriculum* and the didactic category *conditions* in terms of framework factors that determine the approach to care for nature (cf. Haukeland & Lund-Kristensen, 2019). The co-constructive interpretative process between me and the teacher educators, surfaces the following factors as relevant conditions to nurturing care for nature in teacher education: the institutional framework, the teacher educator background, matters of resonance, acknowledgment and cooperation, the human-nature relationship as well as natural and human-made resources. Many of these findings within these themes are

interlinked and can be perceived as both opportunity and challenge. There are many links to previous literature which is why I will give an overview here and go into more detail in the next part of this discussion, assigning one subchapter to each of the four most important findings from this aspect (see chapter 6.2.4 to 6.2.7). While time appears as most highlighted challenge (see chapters 5.1.5), cooperation surfaces as most emphasized opportunity (see chapters 5.1.3), which resonates with Aikens' (2021) and Winks and Warwicks (2021) findings. Such a clear distinction seems more difficult when it comes to the institutional framework. On the one hand, institutional factors appear to be intertwined with issues of time and cooperation, and are in those instances experienced as hinderance (see chapter 5.1.1). Nevertheless, it seems that institutional restrictions can force practices that can be associated with care for nature, and some regulations offer opportunities which can be accessed through strategic engagement by the teacher educators. The later depends on the teacher educators' background including, amongst others, their professional competency and overall relationship with nature (see chapter 5.1.2 and 5.1.4). This surfaces both the institutional framework (see chapter 6.2.7), as well as the teacher educator (see chapter 6.2.4) as important factors for nurturing care for nature. This resonates with Winks and Warwick (2021), who emphasize that "the cultural conditions for educational practice can be set (and challenged) in multiple ways: through national and school-based policy, as well as individual teachers who enact on a daily basis the educational approaches which make up the systemic approach" (p. 379). These issues will be discussed in more detail in the second section of this chapter as indicated above.

6.1.2 Position

This research aspect addresses my first research question, and more precisely, the teacher educators' understanding of nature, friluftsliv and care for nature. However, the teacher educators' visions point at the second research question as they are a concequence of the currently experienced challenges and opportunities. In the SPIRE model, *position* refers to the substantive domain *perceived curriculum* and the didactic category *objective*, as the teacher educators reflect on their own values and visions, also in relation to the *formal curriculum*. In addition, my analysis of the *formal curriculum* represented in the two selected core curriculum sections also works out instances of the *ideological curriculum* (cf. Haukeland & Lund-Kristensen, 2019). The interpretative process surfaces that care for nature can be related to several different ideals including educational, socio-cultural, recreational, ecological, relational, and intrinsic values. The teacher educators display an understanding of care for nature that resonate with the core curriculum sections in terms of ecological values such as sustainability, respect for nature and environmental awareness. Beyond that, however, they seem to have a wider, more holistic understanding of the concept as they refer to many other core values of the core curriculum in this respect. Moreover, some of them display a relational understanding of care for nature which resonates with ecopedagogy (Bjørndal & Lieberg, 1973), place-responsive pedagogy (Jickling et al., 2018; Mannion et al., 2013; Mikaels, 2018) as well as Noddings' (2005) and Næss (Næss, 1988) theories on care for nature. It must be noted that such positions are critical to the anthropocentric hierarchical stance presented in the core

curriculum sections analysed in this study. The school teacher educators recognise this position in the core curriculum and assume an equally critical position.

Against this backdrop, the teacher educators' vision for a teacher education that optimises its efforts of nurturing care for nature includes elements of engaging with nature, actively involving teacher candidates and other members of the local communities, as well as multi- and interdisciplinary efforts towards care for nature (see chapter 5.2.2). Here, the kindergarten teacher educators position themselves more strongly for more engagement with nature, while the school teacher educators argue first and foremost for more multi- and interdisciplinary work on the issue of care for nature. This relates to the challenges and opportunities discussed in *situation* and the hindering and helping factors arising in *integration*.

6.1.3 Integration and Realisation

These research aspects address my first research question, and more precisely, the teacher educators' use of nature and friluftsliv to nurture care for nature. Additionally, the teacher educators' practice reveals challenges and opportunities to nurture care for nature, and thus, this chapter also addresses my second research question. The interpretative process surfaced the same five areas of consequence for both *integration* and *realisation,* and it was sometimes difficult to differentiate between the two aspects in reference to the teacher educators' answers. Both research aspects refer to the substantive domain *experiential curriculum.* In terms of the didactic category, however, *integration* refers to *contents*, while *realisation* refers to *activities* (cf. Haukeland & Lund-Kristensen, 2019). My data material often reveals overlaps between those two didactic categories and in result also between the two aspects. I want to discuss these two aspects together, to distinguish them more precisely from each other, while acknowledging their interface. Relevant areas of consequence for both aspects include the curriculum, competencies, pedagogy, institution, and nature.

First, the teacher educators integrate care for nature in a range of different curricular contents ranging from nature and the environment, culture, sustainable friluftsliv and transport, physical activity and movement, health, as well as forming professional values and attitudes (see chapter 5.3.1). This correlates with Bjørndal and Lieberg's (1973) overall aims of ecopedagogy as outlined in chapter 3.4. To realise this integration in teaching, teacher educators must interpret the curriculum in a way that lets them connect care for nature to these contents in the first place (see chapter 5.4.1). This refers to Goodlad's (1979) curriculum inquiry as inherent process of realising teaching and supports the idea that the teacher educators' competence is essential to realising an objective such as care for nature. I will elaborate this issue further in chapter 6.2.4.

Second, the teacher educators integrate care for nature by addressing competencies for forming, verbalising, and enacting a professional stance on nature. This includes the development of skills that enable the teacher candidates to be in nature and take responsibilities for others in such contexts (see chapter 5.3.2). This takes shape in their practice in form of different activities, for instance, building different shelters, fireplaces, outdoor classrooms or even creating a set-up for an outdoor teaching unit with children from a local kindergarten. Moreover, it includes instances of reflection and academic writing, for example on experiences made in practical

parts of the education (see chapter 5.4.2). This suggests that care for nature is to a substantial extent nurtured through time spent in nature and developing a personal relationship to it. This idea relates to fundamental theory such as ecophilosophy (Næss, 1988), ecopedagogy (Bjørndal & Lieberg, 1973), place-responsive theory (Mannion et al., 2013) and care ethics (Noddings, 2005; Thorsteinsson, 2014) and will be elaborated further in chapter 6.2.2.
Third, the teacher educators integrate care for nature by choosing experiential, nature-based pedagogical approaches (see chapter 5.3.3). They realise this way of teaching mostly by involving others and granting more responsibility to the teacher candidates. For instance, some of them include self-organised tours that allow more time in nature for the teacher candidates. Other solutions are case-based learning and storyline projects in cooperation with other teacher educators or even external institutions. Some teacher educators point out that it requires braveness or that they must dare engaging in such ways of teaching to realise it (see chapter 5.3.3). These are elements that are also highlighted in wild pedagogies and will be discussed in chapter 6.2.6 (Jickling et al., 2018).
Fourth, the institution as an area of consequence confronts the teacher educators with restricted timeframes and financial budgets, and functions based on discipline traditions that can hinder the agenda of nurturing care for nature (see chapter 5.3.4). In terms of realising care for nature within this institutional frame, teacher educators find ways to work with what they have. Solutions to these challenges are, for instance, found on the level of pedagogy as pointed out above, but also by focusing on simplicity and re-use. These are the ways they work in what Aikens (2021) calls "'interstices', […] the space in between" (p. 275). Moreover, realising care for nature more widely in teacher education requires on an institutional level that experienced professionals, particularly from the field of physical education, share insights as to what friluftsliv has to offer to a shared educational agenda that includes nurturing care for nature (see chapter 5.4.4). This is consisten with recommendations and suggestions from the realm of place-responsive pedagogy (Jickling et al., 2018; Mikaels, 2018; Winks & Warwick, 2021).
Fifth, care for nature is integrated by the teacher educators by planning and conducting their practice in the local nature or wider surroundings that are accessible through local public transport (see chapters 5.3.5 and 5.4.4). Including these places in practice requires actions in other areas of consequence as pointed out above. Moreover, two teacher educators mention regretfully that nature itself might eventually contribute to more focus on care for itself in form of natural hazards that demand immediate action (see chapter 5.4.4 and 5.4.5). This is also highlighted by Jickling and Blenkinsop (2020), and the reason why they call on education to acknowledge it's responsibility and explore alternatives for change: "Timelines for change are so urgent that climate change will likely influence our lives dramatically" (p. 122).

6.1.4 Evaluation

Like *integration* and *realisation*, the aspect of *evaluation* refers to my first research question and incorporates both links to understanding and using nature and friluftsliv to nurture care for nature. This research aspect points to the substantive domain *experiential curriculum* and the didactic category *evaluation*, as the teacher educators

reflect on appropriate strategies to assess if the objective of nurturing care for nature is met through their practice based on their own experience (cf. Haukeland & Lund-Kristensen, 2019). In this context, they refer to strategies such as observation of teacher educator behaviour in nature as well as of their focus in conversations and choices in their educational journey. Only one teacher educator mentions more specific criteria for behaviour in nature that can be a sign of care for nature. Additionally, some teacher educators mention more conclusive strategies such as conversations, feedback and visiting former students in their professional practice as teachers. Here, care for nature is understood to be expressed by a focus on outdoor teaching and problematizing issues connected with nature and friluftsliv. One teacher educator also reflects that there is still a lot of potential to develop evaluative strategies and his practice, but that this is limited by time. These results suggest that although care for nature is a value that is embedded in the teacher educators' stance on nature and part of how they involve it in their practice, it is not systematically approached. In this respect it might be helpful to consider Jickling and Blenkinsop's (Jickling & Blenkinsop, 2020) touchstone for care and Thorsteinsons (2014) approach to providing and receiving care in outdoor and adventure education on the basis of Noddings' (2005) ethics of care.

6.2 Lessons and suggestions

In this chapter I look more closely at some of the findings that have a relevant connection to previous literature and make suggestions based on my elaborations. Chapters 6.2.1 to 6.2.3 relate to my first research question, while chapters 6.2.4 to 6.2.7 refer to my second question

6.2.1 Care for nature is more than sustainable development.

The two core curriculum sections analysed here suggest care for nature as related with "sustainable development" (Norwegian Directorate for Education and Training, 2017a, p. 10) and "respect for nature and environmental awareness" (2017b, p. 8). Consequently, this was also the starting point for my conversations with the teacher educators. Nevertheless, further into each of the conversations a wider variety of values and educational principles was seen in connection with care for nature (see chapter 5.2.1). In particular, the three interdisciplinary topics were mentioned repeatedly, suggesting that a focus on care for nature has the potential to bring together aspects of nature, culture and the human being and thus further holistic perspectives and approaches to life. Considering Bjørndal and Lieberg's (1973) criticism on the authorities' competence focus allows questioning the separation of objectives and values in different categories and sections, which can make them seem isolated from each other and hinder the recognition of relevant interfaces. Also, Noddings (2005) points out "there clearly are connections that can be made here to the subjects we call history, geography, literature, and science, but I would like those subjects to contribute to centres of care, not to substitute for them" (p. 49). In my understanding this suggests that care can disappear under the agenda of the different subjects and competencies. This is something Andreas also reports from his experience and can be related to his experience that interdisciplinary work seems difficult in the context school teacher education (see chapter 6.2.6).

Additionally, on the example of the Swedish physical education curriculum, Mikaels (2019) argues that the "human-centred perspectives" portrayed may reduce nature to "merely a back drop for people-centred practices" (p. 87). The teacher educators interviewed for this study show awareness of this, however, nature is largely seen as arena for learning. Ideas such as including nature as co-teacher in teaching as promoted by wild pedagogies (Jickling et al., 2018) are absent from the teacher educators' understandings. This suggests that there are ways to consider alternative positions, however, a reconsideration of formulations and the positioning of care for nature in the official curricula would be advisable, if this value is to be realised in education.

6.2.2 Nurturing care for nature requires time spent in nature and the development of human-nature relationships

The idea that the development of a personal relationship with nature is relevant to care for nature is supported by the fact that the teacher educators point out their own relationship to nature and see themselves as role model for the teacher candidates. Simon and Andreas, for instance, point out explicitly that it requires teachers dedicated to nature to foster care for nature in others (4.1.4. and 4.2.2). In the aspect *position*, care for nature surfaces both as expression and precondition for environmentally friendly behaviour. This resonates with Næss' (1988) theory of self-realisation and Noddings'(2005) ethics of care. As my elaborations on Næss theory in chapter 2.2 show, care for nature can be understood to be mutually dependent with self-realisation, which is the process of identification with some other, and Næss' description of our relationship with the world. This is compatible with Noddings' (2005) understanding of care as part of being human. Jickling and Blenkinsop (2020) capture this interrelation in the phrase "reciprocal relationships of care" (p. 126). Fruthermore, the importance of the human-nature relationship is eminent in her idea that care is nurtured through *modelling*, *dialogue* and *confirmation*. Moreover, the fact that she also sees *practice* as important part of developing care supports the idea that nurturing care for nature requires time spent in and with it, to develop relevant skills in care through "firsthand experience" (Thorsteinsson, 2014, p. 23). However, it appears to me that the focus here is on human-to-human interaction. A place-responsive look at this concept, for instance after Mikaels (2018), would not only ask about human-nature interaction in terms of *practice*, but also in terms of *modelling*, *dialogue* and *confirmation*. Surely, this is an interesting perspective for further research and a starting point for the development of educational practice in teacher education that addresses care for nature more systematically. Based on their understanding of care for nature, the teacher educators argue that if children and pupils are supposed to develop care for nature, so do the teacher candidates. This includes developing personal values around nature and competency for being in nature to provide a safe space for others to do the same. The teacher educators point out that this requires forms of holistic learning through experience based on practical, emotional and cognitive engagement. Against this backdrop, all teacher educators see a value in incorporating nature and specific forms of friluftsliv in their practice to foster care for nature. This is consistent with Dewey's theory of knowledge and knowing centring around experience (Coghlan & Brydon-Miller, 2014), as well as Bjørndal and Liebergs' (1973) holistic creation process combining knowledge and practice. Here, too, questions arise with

regard to the necessary duration and the relevance of recurring visits to the same or different locations, which is partly explored by Leirhaug et al. (2020) in the context of friluftsliv as part of physical education as school subject. Future research could also include a look on this in teacher education and explore these questions further.

6.2.3 Specific forms of friluftsliv and being in nature hold a potential for nurturing care for nature.

An understanding of care for nature that is in line with Næss and Nodding's conceptions of care calls for pedagogical approaches that support the development of such reciprocal relationships. The curricular frameworks suggest that "children shall be given outdoor experience" (Norwegian Directorate for Education and Training, 2017a, p. 11), or "experience nature" (2017b, p. 8) as important in the context of care for nature. On the backdrop of the Norwegian culture and tradition this is linked to friluftsliv. As pointed out in chapter 2.1, the Norwegian Ministry of Climate and Environment suggests friluftsliv in general as appropriate method and topic to target sustainable development. However, Gurholt and Haukeland (2019) emphasize that friluftsliv is surrounded by contradictory claims of sustainability, utilisation and identity by tradition and is not environmentally friendly by default. Bearing in Mind Mikaels (2019) criticism of the unreflected integration of friluftsliv in the Swedish curriculum for physical education and health, it could be argued that also in a Norwegian context, friluftsliv is a taken for granted part of the *ideological curriculum* (cf. Goodlad, 1979). The teacher educators associate nature experience with friluftsliv, however, many of them navigate the paradox traits of friluftsliv, by acknowledging them and making concise distinctions as to what forms of friluftsliv they see connected with care for nature. For instance, Simon, Karin, and Andreas point out explicitly that activity focused approaches to friluftsliv are problematic in this context. Instead, they see opportunities in forms of friluftsliv that, for instance, are local, slow and low in impact. In this context, there appears to be a focus on low impact in terms of immediate local effects such as leaving no trace, and long-term global effects such as limited travel for low emissions. Moreover, there seems to be a focus on building and becoming aware of a personal relationship with nature. Furthermore, all teacher educators point out the need for reflection on values and experiences to derive new actions from that. What is more, one of them suggests addressing and experiencing the paradoxes of friluftsliv as pedagogical point to make (Andreas, see chapter 5.4.2). From this perspective, friluftsliv seems to be a means to an end, namely being with nature, rather than the focus of the activity. Nevertheless, there seems to be a need for optimisation when it comes to determining if care for nature is, in fact, promoted in the teacher educator's programs (see chapter 6.1.4). On the one hand these elaborations suggest that 1) friluftsliv has a potential for nurturing care for nature, and 2) if this potential is to be made fruitful in teacher education, paradox characteristics of the practice and our engagement with nature should be addressed and desirable forms of engagement have to be distinguished. Equally, the ability to do so appears as necessary competence to be acquired by teacher candidates. On the other hand, navigating friluftsliv as contested practice could also be supported by more conscious formulations in the core curricula.

6.2.4 The role of the (teacher) educator is important

My findings suggest that whether a teacher educator includes nature and friluftsliv in their training program is partially dependent on their personal understandings, values and competencies related to being and teaching nature. For instance, Annette has found instances that justify her approach to teaching throughout the changing curricula of the last 30 years (see chapter 5.1.2 and 5.4.1). Also, Simon speaks of finding the gap as part of his profession (see chapter 5.1.3). In a similar vein, Karin says emphasises the fact that she will interpret the same curriculum text differently than a colleague with a different background (see chapter 5.1.2). This shows that the realisation of one and the same core curriculum depends on the respective educator. On the backdrop of Næss' (1988) and Nodding's (2005) conceptualisations of care for nature, it does not surprise that the teacher educators acknowledge the importance of their own role in nurturing care for nature. They are the ones to model caring relationships with nature, engage in meaningful dialogue and confirmation and simultaneously provide space for the teacher educators to do engage in processes of engagement and identification with nature to foster, express and experience their own care for it. The fact that care and identification are mutually dependent then also explains some teachers' predispositions to implement care for nature in their practice. This also interlinks with Karin's elaborations on subject traditions that determine whether teacher educators see opportunities for including nature in their practice in the first place. This sets off a spiral effect to following generations with the same predispositions, ensuring that institutional practice "bends toward the status quo" (Jickling et al., 2018, p. 2); in the case of Norwegian education, that friluftsliv education is limited to the discipline of physical education. If this is the case, then it is highly relevant that researchers and practitioners with more insights share their learnings to support their colleagues (Leirhaug et al., 2020). This research intends to make a meaningful contribution to that agenda and calls for more research that includes further perspectives and subjects.

6.2.5 Time is understood to be the biggest challenge

Time is an issue that overlaps with almost any other topic emerging from the data material and is mostly seen as a challenge by the teacher educators. This includes time in nature, time for in-depth learning, and time for the development of practice. This finding resonates with previous research defining "most of these barriers [to environmental education practice in schools] pertained to institutional factors, with the lack of teaching and preparation time documented as the most consistent barriers" (Aikens, 2021, p. 275). It is interesting that the lack of time for development does not appear from the referenced study and suggests that Andreas might be right when he says that development is often taken for granted as part of preparation. This might also contribute to the fact that some teacher educators felt a lack of acknowledgement of their work, which becomes invisible through this mental barrier. This draws a line between the ambition of development and maintenance of workforce and health, which can be supported on an institutional level by appropriate time allocation and funding. Educational development seems often to be shouldered by devoted individuals that are willing to sacrifice private time, money and health to realise values such as care for nature (see chapter 5.1.5). I also understand this on my personal professional background taking a two-year unfinanced break from working to find solutions through this

study (see chapter 1.1). In terms of available time in nature, an opposite imbalance concerning the kindergarten and school context surfaces from the teacher educators experience. In the participants cases, kindergarten teacher education seems to offer teacher candidates fewer opportunities for time in nature than to children in kindergartens, while the school context appears to offer more time in nature to those teacher candidates that study physical education or take a course in friluftsliv, than to pupils in schools (see chapter 5.1.5). This can in part be supported by Leirhaug and Arnesen (2016), who find that the implementation of educational friluftslif is limited and decreases throughout the higher grades as pupils near graduation. My research did not surface such studies in the kindergarten context, which might indicate that this is not an issue here. However, more research in this direction is needed to investigate this experienced opposite imbalance in teacher education.
The solutions found to deal with limited time can be described as what Aikens (2021) calls "interstitial tactics" (p. 276). To borrow her vocabulary, the teacher educators use "creative approaches to time" (Aikens, 2021, p. 281), for instance the inclusion of self-organised tours, and "questioning taken-for-granted barriers" (p. 281) in terms of appropriate friluftsliv practices in nurturing care for nature. Aikens also reports about such strategies used on school leadership level in terms of rethinking matters of time allocation. This suggests that also in teacher education, there might be hidden interstices, for instance on the department level, to deal differently with time. This is particularly important if requirements for development in terms of nurturing care for nature are to be taken seriously. Because time interfaces with many of the other emerging themes, opportunities to deal with time as challenge also surface in other areas of consequence. Cooperation and involvement of others is mentioned repeatedly in this context.

6.2.6 Cooperation is understood as biggest opportunity:

Cooperation is repetitively brought up as important opportunity. This includes working with colleagues both in and across disciplines, but also involving students and other members of society to shape new practice together (see chapter 5.1.3, 5.3.3 and 5.4.3). This finding is consistent with previous research highlighting the importance of "recruiting co-conspirators" (Aikens, 2021, p. 282), "co-creating" (Winks & Warwick, 2021, p. 379), and "learning through shared responsibility" (p. 380). In this context, Jickling et al. (2018) highlight that this requires "considerations about control" (p. 3). Aikens highlights, "two themes emerged in this category: first, the overarching theme of developing affective relations, particularly trust; and second, moving beyond teachers as experts and understanding knowledge as distributed" (p. 282). This can be seen in relation with some of the teacher educators' remarks about being brave and daring to involve others (see chapter 5.4.3). The kindergarten teacher educators also mentioned such cooperation as solutions to working effectively with limited resources, such as described above on the example of time. However, my findings suggest that working across disciplines is more difficult in the context of school than in kindergarten education (see chapter 5.1.3 and 5.2.2). In this context, Andreas highlights a shared responsibility to nurture care for nature in all disciplines, and an individual responsibility of the field of physical education to share what friluftsliv can contribute to this agenda, which resonates with Leirhaug et al (2020). My findings suggest that relevant factors in this context are time allocation,

financial resources, and the separation of subject disciplines (see chapter 5.1.1 and 5.1.5). The later can be linked to my elaborations on Bjørndal and Lieberg's criticism on the authority's competence focus in chapter 6.1.2. This is also something, I can relate to on my own professional background observing that disciplines tend to work on their own an often on the same topics. If a shared responsibility for care for nature is to be pursuit, barriers on the institutional level must be lowered. Further research is needed to support this process. What is absent from my conversations with the teacher educators, as pointed out before (chapter 6.2.1), is the consideration of seeing nature as partner. Jickling and Blenkinsop (2020) offer two touchstones for reflection on such a perspective, one of them on nurturing care for nature. I want to encourage teacher educators to explore this perspective in their practice by using the provided aids for reflection, maybe even through further research on care for nature in teacher education.

6.2.7 Regulations and restrictions can force change and produce opportunities

Although the teacher educators report about several challenges that arise from the institutional framework, such as the struggle with time, there are instances that show a positive side to this medallion. On the one hand, this is evident in the fact that all teacher educators find opportunities to address care for nature in the official curricula. The fact that this value is embedded in the core curricula in particular means that it is something that can be referred to across disciplines, which makes this a relevant finding for a shared agenda of nurturing care for nature as part of realising the interdisciplinary topics (Leirhaug et al., 2020). On the other hand, institutional restrictions have been observed to force practices that can be associated with care for nature (chapter 5.1.5). I want to highlight Andreas' example about the teachers that were unwilling to change and found benefits upon being forced by lack of funding. This shows that institutional regulations and restrictions can on the one hand support value choices, and on the other hand, make care for nature the obvious choice by limiting other options. This is consistent with previous literature and research promoting the idea that official policies and regulations play an important role to further educational development towards eco-social change (Aikens, 2021; Kopatz, 2016; Winks & Warwick, 2021). In this context, Aikens presents "exploit[ing] windows of affordance or opportunity within institutional structures" (p. 280) as another kind of interstitial tactics. This includes "tactical engagement with, and avoidance of, institutional structures" (p. 280). My findings show that the teacher educators employ these strategies in the way they interpret the curriculum documents. Opportunities, such as found in the interdisciplinary topics is engaged with while anthropocentric positions and the knowledge focus are ignored in some cases more so than in others. Bearing in mind, that this competence is highlighted as highly relevant for the teacher educators, this holds true for the teacher candidates as well. To establish a teaching practice that nurtures care for nature in children and young people within the institutional framework of schools and kindergartens, they require the same competencies. However, it did not become clear to me in how far this kind of engagement with the curriculum is part of the participants' practice. Teacher educators might want to explore the point of interstitial tactics further with their teacher students.

7 Conclusion

This work has investigated how teacher educators nurture care for nature in Norwegian programs for kindergarten, and school teacher education. The research process was guided by the following questions:

1) How do teacher educators understand and use nature (friluftsliv) in their work to nurture care for nature in teacher candidates?
2) Which factors in teacher education support and hinder nurturing care for nature in teacher candidates?

The purpose of investigating these questions was to contribute to the facilitation of care for nature as a core value in Norwegian public education. However, this research was not designed to make conclusive generalisations for Norwegian teacher education on the matter of care for nature in general. Instead, it intended to identify opportunities in teacher education for nurturing care through friluftsliv and nature-based approaches. By providing a descriptive record of such instances, I respond to the calls in previous research for support of educational development for eco-social change through teacher education. The ambition to identify inspiring practices and opportunities required my research to include teacher educators that implement nature and friluftsliv in their practice. My investigation followed the nature of applied research through a qualitative mode of inquiry that draws on pragmatism and is descriptive in its objective. The pragmatic position of my research integrates both an experiential aspect in form of interviews, a constructivist position on dealing with the transcriptions and a contextual position by looking at the text in specific curriculum sections. I employed Haukeland and Lund-Kristensen's (2019) ecopedagogical approach, the SPIRE model, as the methodological framework of my research. Furthermore, I used semi-structured interviews and a systematic selection of curriculum sections as strategies for data collection. In an abductive approach to data analysis, I combined this methodological framework with thematic coding. Finally, my findings were presented, discussed, and contextualised in the light of previous research and literature following the working principles of the SPIRE model.

1) Understanding and use of nature and friluftsliv to nurture care for nature. My findings show that the teacher educators' understandings of care for nature range on a scale between an anthropocentric position, where responsibility is placed on humans towards nature, and a more relational, egalitarian human-nature relationship. On this scale, care for nature is seen related with, as part and extension of sustainable development. The core curriculum sections can be located towards the anthropocentric position of this scale. From this position, care for nature is linked with ecological values around sustainability. This includes respect for nature, environmental awareness, and nature as provider of ecosystem services for humans, such as supplying resources, furthering health, well-being, and education. However, the core curriculum sections also include an element of joy which could be interpreted as recognition of nature and friluftsliv's intrinsic values in the context of care for nature. The sections differ, as the kindergarten curriculum is focused on experience and discovery of nature in respect to care, while the school curriculum is focused on a cognitive perspective on nature. In contrast, place-responsive research and literature on care for nature places a focus on holistic approaches and assumes a relational position.

The teacher educators' positions range somewhere in between these two positions. All teacher educators acknowledge and resonate with the positions displayed by the curriculum sections. Nevertheless, the two school teacher educators express concerns about the cognitive and anthropocentric orientation of the documents, which in their opinion lets care for nature fade into the background. Going beyond the curriculum sections, all teacher educators connect care for nature with the unity of all interdisciplinary topics. They also mention values and topics around democracy, culture, identity as relevant in this context. This more holistic stance could be localised further towards a relational position on the scale. In resonance with the core curriculum sections, the teacher educators value the inclusion of nature experience in their programs. They associate friluftsliv with this and portray a rather wide understanding of nature and friluftsliv in general. However, when it comes to nurturing care for nature, they distinguish clearly between appropriate and inappropriate forms of friluftsliv. They highlight practices that have a low environmental impact, allowing space for time spent in local nature to develop personal relationships with and professional values towards nature and firluftsliv. This way, they navigate the paradoxes of friluftsliv by acknowledging them and differentiating between practices. This competence surfaces as valuable for any educator that works with educational friluftsliv and outdoor life. This is an important finding that expands the current academic discourse on the understanding and potentials of educational friluftsliv (see Leirhaug et al., 2020; Mikaels, 2019) .

To integrate and realise care for nature within the institutional structures of Norwegian teacher education, the teacher educators employ what Aikens (2021) calls "interstitial tactics" (p. 276). They "exploit windows of affordance or opportunity" (p. 280) through tactical engagement with, and avoidance of, [certain] institutional structures" (p. 280). For instance, they find curriculum sections beyond the ones that explicitly address care for nature and interpret them in a way that justifies their own position. This way, they connect care for nature to contents such as nature and the environment, culture, sustainable friluftsliv and transport, physical activity and movement, health, as well as forming professional values and attitudes. Within this scope, they target competencies that enable teacher candidates to form, verbalise and enact a professional stance on nature. They do this by employing a combination of theory and practice, where ideally nature experiences through local, slow and low- impact forms of friluftsliv serve as starting point for reflection and academic writing. Valued pedagogical approaches include experiential and case-based learning as well as story line during shorter and longer overnight stays in nature. This is consistent with current literature in outdoor education (see Mannion et al., 2013).

Although all teacher educators can take a stance on care for nature, locate and enact it in their practice, there seems to be a need for optimisation when it comes to determining whether care for nature is, in fact, promoted in their programs. This impression is gained by the fact that few of the teacher educators can pinpoint specific criteria for evaluation and one of them utters a desire to develop practice in this direction. Thorsteinsson's (2014) conceptualisations of care for nature for educational in an outdoor education context and Jickling and Blenkinsip's (2020) guidelines for reflection offer interesting frameworks that could be explored and extended in this respect.

2) Challenges and Opportunities. The elaborations above show a complex network of interrelated and different factors are involved in and relevant to the agenda of nurturing care for nature in teacher education. These include institutional frameworks and regulations, the professional teacher educator background, pedagogical approaches, cooperation and interdisciplinary work, the human-nature relationship, time, gear, and money. It is particularly interesting that all the factors mentioned can present both as challenges and opportunities to nurture care for nature. Often this is a question of the presence or absence of a factor. In resonance with current research (Aikens, 2021), lack of time can be identified as most challenging, while cooperation and involvement of other colleagues, teacher candidates and community members is experienced as rising opportunities in the example of my participant collaborators. Furthermore, institutional structures and regulations can enforce practices that are associated with care for nature and additionally hold interstices that can be utilised to nurture care for nature. Therefore, the role of the teacher educator is understood to be highly relevant, which is consistent with current research (Aikens, 2021; Jickling & Blenkinsop, 2020; Mikaels, 2019; Winks & Warwick, 2021). A closer look at the data material reveals the following challenges and opportunities to nurture care for nature in the specific instances of the interviewed teacher educators:

Challenges for nurturing care for nature include: 1) A lack of time spent in nature for the kindergarten teacher educators and the teacher educator that recently switched to teach pedagogy in teacher education. 2) A lack of time and resources for the development of practice. 3) A culture around activity- and human-centred forms of friluftsliv that contributes to the understanding of friluftsliv as recreation. 4) Barriers for interdisciplinary work for the school teacher educators. My research suggests that time allocation, financial resources and the separation of subject disciplines play a role in this context. Another contributing factor could be 5) Institutional structures that maintain a status quo of traditions in terms of including or excluding nature in practice. With these insights, my research expands the work of Leirhaug et. al (2020), who emphasize the interdisciplinary responsibility to meet core-aspects of the curriculum such as the interdisciplinary themes. Nevertheless, future research is needed to identify the details of existing barriers in teacher education.

Opportunities to nurture care for nature include: 1) Resources to spend time in nature for the school teacher educators that are specialised in physical education. 2) Approaches to friluftsliv that focuses on being in nature and can be described as local, slow and low in ecological impact. 3) The core curricula in general and the interdisciplinary topics in particular. Aikens work suggests that there might be additional interstices, for instance a creative approach to time allocation enacted on the department level. Possible options could be explored in further research. 4) The teacher educators' background and competencies that allow them to identify, verbalise and enact care for nature in their programs. 5) "Creative approaches to time" (Aikens, 2021, p. 281), for instance the inclusion of self-organised tours, and "questioning taken-for-granted barriers" (p. 281) in terms of navigating friluftsliv paradoxes to nurture care for nature. 6) De-centering the teacher educator through cooperation and involvement of others by granting control to other teacher educators, external teachers, teacher candidates and other community members (Jickling et al., 2018) .

Concluding remarks and suggestions. My research shows that responsibilities to foster care for nature are distributed between the authorities, the different departments both in terms of their leadership, as well as their collective workforce and individual teacher educators and candidates. Furthermore, my findings suggest that important contributions have been made by all involved, and that there is room for further improvement. Existing challenges and barriers should be recognised and investigated, while competences to identify and enact prevailing opportunities should be furthered. The paradoxes of friluftsliv can be navigated and its potentials harvested through such efforts. Against this backdrop, friluftsliv can be seen as "window of affordance" (Aikens, 2021, p. 280) to nurture care for nature in teacher education and other contexts. Nevertheless, several perspectives remain absent from this study and should be explored in further research. This includes a relational understanding that includes nature as partner instead of learning arena in teacher education (Jickling & Blenkinsop, 2020). Furthermore, this study lacks insights from the contexts of the multitude of disciplines, indigenous Sami culture and other minorities that have a share in teacher education. Hence, the status quo of friluftsliv as field of expertise in physical education is mirrored in this work. In acknowledging this, my work aims to contribute and encourage sharing insights on opportunities and potentials of nature- and friluftsliv-based approaches to nurture care for nature (Leirhaug et al., 2020).

A personal remark. Looking back on this work, I remain convinced that the question of our time is finding reasonable ways of being and living in this world. This is nothing we can do alone, simply because we are not alone in this world. There are other humans and more-than humans involved. If we aim at good lives for anyone, we must aim at good lives for everyone. That means we need to consider each other and make decisions together. So, then we need to learn how to do that and – with loving care – relate to ourselves, others, culture and nature at the same time. This is an ambitious goal, and it seems we are just at the beginning of finding out how that works. To thank and honour my participant collaborators in a last exchange of words:

"Here we touch on one of the biggest topics of our time […] there is perhaps nothing more important than to move and engage pupils and students in a topic that deals with care for nature." (Andreas)
"They must feel their body, and they must have different experiences in friluftsliv, and they must also be able to use these experiences" (Jens)
So, *"be brave together, and do it with the students, not for the students."* (Annette)
"Trust that all goes well in the end because it may seem a bit chaotic when you stand in it, but it's worth it" (Simon),
because *"care for nature doesn't just happen to our teacher students unless we as teacher educators focus on it."* (Karin)

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List of tables and figures

Annexes

Annexe 1: Information letter, including consent form

University of South-Eastern Norway

UNIVERSITY OF SOUTH-EASTERN NORWAY
Nordic Master in Friluftsliv Studies
Master Thesis
Birthe Silvie-Mareen Daber

Are you interested in taking part in the research project

"Teacher education and the nurture of care for nature"?

This is an inquiry about participation in a research project where the main purpose is to bring to the fore teacher educator perspectives on nurturing care for nature in teacher education. In this letter, I will give you information about the purpose of the project and what your participation will involve.

Purpose of the project

The master thesis project sets out to explore how teacher educators work in order to nurture care for nature in teacher candidates. This relates to the core values of education as put forth by the Norwegian Directorate for Education and Training. Furthermore, it can be seen in response to current research pointing out the important role of teacher education for educational practice that is responsive to the environmental issues of our time. Against this backdrop, my research is guided by the following questions:

1) How do teacher educators understand and use nature (friluftsliv) in their work to nurture care for nature in teacher candidates?
2) What are helping and hindering factors in teacher education for nurturing care for nature in teacher candidates?

Who is responsible for the research project?

The University of South-Eastern Norway (USN) is the institution responsible for this master thesis project, which is run by Birthe Daber and supervised by Per Ingvar Haukeland.

Why are you being asked to participate?

This research project addresses a network of professionals that have long experience in or are currently working with nature and friluftsliv in teacher education. People in relevant positions are identified by USN. The project aims at a total of 6 informants who should equally represent teacher educators for early childhood and school education.

What does participation involve for you?

If you choose to take part in the project, this will involve you taking part in an interview. It will be conducted via video call and take approx. 60 minutes. This interview includes questions about your professional background, understanding and use of nature and friluftsliv to nurture care for nature in teacher candidates, as well as perspectives on challenges and opportunities in this context. Your answers will be recorded electronically.

Participation is voluntary

Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

Your personal privacy – how I will store and use your personal data

I will only use your personal data for the purpose specified in this information letter. I will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

- The master student and her supervisor will have access to the personal data.

- To ensure that no unauthorized persons are able to access the personal data, your name and contact details will be replaced with a code. The list of names, contact details and respective codes will be stored separately from the rest of the collected data. The data will be stored and protected through the IT services provided by USN.

What will happen to your personal data at the end of the research project?

The project is scheduled to end on Mai 15, 2022. Your personal data will be anonymized, and at the end of the project, digital recordings will be deleted.

Your rights

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?

We will process your personal data based on your consent.
Based on an agreement with USN, Data Protection Services has assessed that the processing of personal data in this project is in accordance with data protection legislation.

Where can I find out more?

If you have questions about the project or want to exercise your rights, contact:

- USN via Prof. Per Ingvar Haukeland, by telephone: +47 35 95 26 84 or by email: per.i.haukeland@usn.no
- MA student Birthe Daber by telephone: +49 176 821 469 76 or by email: birthe.daber@gmail.com
- Data Protection Officer at USN, Paal Are Solberg, by email: Paal.A.Solberg@usn.no
- Data Protection Services, by telephone: +47 53 21 15 00 or by email: personverntjenester@sikt.no

Yours sincerely,

Birthe Daber
(master student)

Consent form

I have received and understood information about the project *Promoting sustainable development, democracy and life skills through friluftsliv* and have been given the opportunity to ask questions. I give consent:

- ☐ to participate in an interview via video call
- ☐ I give consent for my personal data to be processed until the end date of the project, approx. Mai 15, 2022

(Signed by participant, date)

Annexe 2: Interview guide, kindergarten teacher education

University of South-Eastern Norway

UNIVERSITY OF SOUTH-EASTERN NORWAY
Nordic Master in Friluftsliv Studies
Master Thesis
Birthe Silvie-Mareen Daber

Interview Guide

Master thesis project:

Teacher education and the nurture of care for nature

Research questions:

How do teacher educators work to nurture care for nature in teacher candidates?

- How do teacher educators understand and use nature (friluftsliv) in their work to nurture care for nature in teacher candidates?
- What are helping and hindering factors in teacher education for nurturing care for nature in teacher candidates?

Background questions

1. Please describe the work you do and the responsibilities you have.
2. How long have you worked in this position?
3. Can you summarise your professional experience in teacher education.

~❋~

Understanding of key terms

4. How do you understand and use 'nature' and 'friluftsliv' on a personal level?
5. How important is bringing 'nature' and 'friluftsliv' into education to you?
6. What does 'care for nature' mean to you?
7. In the core curriculum for kindergartens, the Norwegian Directorate for Education and Training demands:

   > *Children shall be given opportunities to give care and to look after their surroundings and the natural environment. For Sami children, this means living in harmony with, making use of and reaping the land. The children shall be given outdoor experiences and discover [sic] the diversity of the natural world, and kindergartens shall help the children to feel connectedness with nature.*

   How do you understand 'care for nature' in this context? (PERCEPTION)
8. Describe how do you envision a teacher education that nurtures care for nature in teacher candidates?

~❋~

Teacher educator's work to nurture care for nature

9. What do you do in your teaching to nurture care for nature in teacher candidates? (IMPLEMENTATION)
    a. What competencies and contents do you address for this? (content, what)
    b. When do you address care for nature in your practice? (when)
    c. What activities and methods do you apply in this context? (activity, how)
    d. What places and other people do you involve in this agenda? (where, who)
10. What do you see as the value of nurturing care for nature in teacher candidates? (objective)
11. How do you evaluate if your practice is meeting the goal of nurturing care for nature in teacher candidates? (evaluation)

Challenges and Opportunities (conditions)

12. What do you see as factors that may hinder the agenda of nurturing care for nature in teacher education?
13. What do you see as factors that may help the agenda of nurturing care for nature in teacher education?

"There is one last thing I'd like to discuss"

14. What are the necessary steps to realise your vision for a teacher education that nurtures care for nature?

~❋~

Closing questions

15. Is there anything else you would like to add from your professional experience as a teacher educator that we haven't explored?"
16. Please, feel free to ask me any questions you may have concerning this research project.

~❋~

"Thank you so much for participating today and sharing your perspective with me."

Annexe 3: interview guide, school teacher education

University of South-Eastern Norway

UNIVERSITY OF SOUTH-EASTERN NORWAY
Nordic Master in Friluftsliv Studies
Master Thesis
Birthe Silvie-Mareen Daber

Interview Guide

Master thesis project:

Teacher education and the nurture of care for nature

Research questions:

How do teacher educators work to nurture care for nature in teacher candidates?

- How do teacher educators understand and use nature (friluftsliv) in their work to nurture care for nature in teacher candidates?
- What are helping and hindering factors in teacher education for nurturing care for nature in teacher candidates?

Background questions

1. Please describe the work you do and the responsibilities you have.
2. How long have you worked in this position?
3. Can you summarise your professional experience in teacher education.

~❋~

Understanding of key terms

4. How do you understand and use 'nature' and 'friluftsliv' on a personal level?
5. How important is bringing 'nature' and 'friluftsliv' into education to you?
6. What does 'care for nature' mean to you?
7. In the core curriculum for schools, the Norwegian Directorate for Education and Training demands:

   > *Human beings are part of nature and are responsible for taking good care of it. Throughout their schooling [sic] the pupils must acquire knowledge about and develop respect for nature. They must experience nature and see it as a resource and as a source of utility, joy, health and learning. The pupils shall develop [sic] awareness of how our lifestyles impact nature and the climate, and thus also our societies. The school shall help the pupils to develop the willingness to protect the environment.*

   How do you understand 'care for nature' in this context? (PERCEPTION)
8. Describe how do you envision a teacher education that nurtures care for nature in teacher candidates?

~❋~

Teacher educator's work to nurture care for nature

9. What do you do in your teaching to nurture care for nature in teacher candidates? (IMPLEMENTATION)
    a. What competencies and contents do you address for this? (content, what)
    b. When do you address care for nature in your practice? (when)
    c. What activities and methods do you apply in this context? (activity, how)
    d. What places and other people do you involve in this agenda? (where, who)
10. What do you see as the value of nurturing care for nature in teacher candidates? (objective)
11. How do you evaluate if your practice is meeting the goal of nurturing care for nature in teacher candidates? (evaluation)

Challenges and Opportunities (conditions)

12. What do you see as factors that may hinder the agenda of nurturing care for nature in teacher education?
13. What do you see as factors that may help the agenda of nurturing care for nature in teacher education?

"There is one last thing I'd like to discuss"

14. What are the necessary steps to realise your vision for a teacher education that nurtures care for nature?

~❋~

Closing questions

15. Is there anything else you would like to add from your professional experience as a teacher educator that we haven't explored?"
16. Please, feel free to ask me any questions you may have concerning this research project.

~❋~

"Thank you so much for participating today and sharing your perspective with me."

Annexe 4: NSD approval

NSD NORSK SENTER FOR FORSKNINGSDATA

Vurdering

Referansenummer

588487

Prosjekttittel

Teacher education and the nurture of care for nature

Behandlingsansvarlig institusjon

Universitetet i Sørøst-Norge / Fakultet for humaniora, idrett- og utdanningsvitenskap / Institutt for friluftsliv, idrett og kroppsøving

Prosjektansvarlig (vitenskapelig ansatt/veileder eller stipendiat)

Per Ingvar Haukeland, per.i.haukeland@usn.no, tlf: +4735952684

Type prosjekt

Studentprosjekt, masterstudium

Kontaktinformasjon, student

Birthe Silvie-Mareen Daber, birthe.daber@gmail.com, tlf: +4746110482

Prosjektperiode

28.02.2022 - 15.05.2022

Vurdering (1)

02.03.2022 - Vurdert

OM VURDERINGEN
Personverntjenester har en avtale med institusjonen du forsker eller studerer ved. Denne avtalen innebærer at vi skal gi deg råd slik at behandlingen av personopplysninger i prosjektet ditt er lovlig etter personvernregelverket.

Personverntjenester har nå vurdert den planlagte behandlingen av personopplysninger. Vår vurdering er at behandlingen er lovlig, hvis den gjennomføres slik den er beskrevet i meldeskjemaet med dialog og vedlegg.

TYPE OPPLYSNINGER OG VARIGHET
Prosjektet vil behandle alminnelige personopplysninger, og særlige kategorier av personopplysninger om politisk oppfatning og filosofisk overbevisning frem til 15.05.2022.

LOVLIG GRUNNLAG

Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 nr. 11 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse, som kan dokumenteres, og som den registrerte kan trekke tilbake.

For alminnelige personopplysninger vil lovlig grunnlag for behandlingen være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 a.

For særlige kategorier av personopplysninger vil lovlig grunnlag for behandlingen være den registrertes uttrykkelige samtykke, jf. personvernforordningen art. 9 nr. 2 bokstav a, jf. personopplysningsloven § 10, jf. § 9 (2).

PERSONVERNPRINSIPPER
Personverntjenester vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen:

om lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen

formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke viderebehandles til nye uforenlige formål

dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet

lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet.

DE REGISTRERTES RETTIGHETER
Vi vurderer at informasjonen om behandlingen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.

Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18) og dataportabilitet (art. 20).

Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

FØLG DIN INSTITUSJONS RETNINGSLINJER

Personverntjenester legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

For å forsikre dere om at kravene oppfylles, må prosjektansvarlig følge interne retningslinjer/rådføre dere med behandlingsansvarlig institusjon.

MELD VESENTLIGE ENDRINGER
Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til oss ved å oppdatere meldeskjemaet. Før du melder inn en endring, oppfordrer vi deg til å lese

om hvilken type endringer det er nødvendig å melde:

https://www.nsd.no/personverntjenester/fylle-ut-meldeskjema-for-personopplysninger/melde-endringer-i-meldeskjema

Du må vente på svar fra oss før endringen gjennomføres.

OPPFØLGING AV PROSJEKTET
Vi vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet/pågår i tråd med den behandlingen som er dokumentert.

Kontaktperson hos oss:
Anne Marie Try Laundal

Lykke til med prosjektet!

Annexe 5: Tables analysis

Table Data Analysis: Teacher education and the nurture of care for nature

Background information				
Question:		1. Job position	2. length in position	3. overall experience
Kindergarten	Jens	Class leader in kindergarten teacher education with a focus on nature and friluftsliv	21 years	4,5 years college for teacher education and PE, also partly kindergarten Teacher for PE and friluftsliv high school level friluftsliv core area of interest throughout all the years
	Simon	25% teacher educator for kindergarten 75% research, stipend Phd	Since 1998 24 years	both in kindergarten- and school-based teacher education last years mostly kindergarten
	Annette	pedagogy	since 1992 30 years	Mostly kindergarten and recently primary school last three years "Equal literacy or, eh creative, Uhm, learning transformative learning for, ehm holistic learning for ecological literacy"
School	Karin	Teacher educator PE and friluftsliv in bachelor and master program as well as PPU Teaches didactics Phd in interdisciplinary teaching	Since 2011 11 years	Teacher at VGS, high school PE and friluftsliv 6-7 years
	Andreas	Senior lecturer at the [redacted] program: 3-year bachelor's education in outdoor life, 3-year vocational teacher education in PE,	Since 2009 (13 years)	Subject teacher education outdoor life, took several subjects, (Master on outdoor school) 3 years with no school at the junior high school, [redacted] 7 years in folk high school, mostly sports teams with some outdoor life 13 years [redacted]

Table Data Analysis: Teacher education and the nurture of care for nature

SITUATION (*conditions*)			
Question:		**12. problems**	**13. possibilities**
Kindergarten	Jens	5.1.5 *"lack of time"* to be outside as *"biggest hindrance"*	5.1.5/ 5.1.2 Time in the sense that you take the teacher out of the equation → self-organised trips, task-based learning: *"It is time here, too, so different tasks that we can give the students. We call it self-organized trip."*
	Simon	5.1.5 Time to be in the field/nature: *"the biggest challenge is that the time in the field or the time in nature has become less and less"* - 5.1.1 Bigger groups, fewer teachers: *"the groups have become larger, [...] more students and fewer teachers."* - 5.1.1 Many objectives: *"And you feel time pressure when you are supposed to achieve many goals in a short time.* - *"Going through the whole process. That is what takes time"* (preparation, building the situation, involving students in activity and reflection) (This is the biggest aspect because the practical part of this topic is important as a point of departure for discussions and critical thinking) 5.1.2 competence to be in the field/nature: it is not enough just to go out, it is a whole process and in addition to time, this takes competence: preparation, creating a read thread, keeping up a situation in the moment, involving students in activity and reflection: *"it is quite demanding to have a common thread throughout the program, that there are some learning goals and maybe some educational goals on such a trip. It requires a lot of competence."* 5.1.5 (/5.1.5.1.1) focus on extreme tours/ adventure-seeking *"another challenge that we have become very focused on the trips [...] to be a bit extreme"*, and gear (in his case, seems like this has been overcome, institution is providing a "gear-bank") 5.1.3 Assumption that FL is recreation → lack of Status/Recognition/support from colleagues and superiors: confirmation that working outside has educational value and is not just recreation 5.1.4 enjoyment of nature is important because of the role model function; can be lost when working with it and rekindled by spending solo time in nature.", *"I lost the joy of being on tour"* → the paradox of nature as a workplace, the intrinsic value goes amiss à losing a personal connection if the context is mainly for work → some actions in this context contribute to destroying nature	5.1.2 (5.1.4) Exploring other pedagogical approaches: - focusing on the aesthetic through photography for calmer, more careful and aware ways of being in nature → has been helpful during corona! - *"various aesthetic expressions: photography and drawing, poems, Drama"* 5.1.5/5.1.2 self-organised tours (5.4.4) *"a lot is done with self-organised trips, for example, that you let the students organize and go on a trip and document themselves then. That frees a lot."* 5.1.3 Interdisciplinary work: **"***interdisciplinary thinking, that you go together with several teachers from science, from mathematics, ..."* - cooperation with teacher educators from other fields and for other subject areas - combining lessons and praxis through inviting other actors into the lessons, e.g., kindergarten children - continuity and transparency: *"you work with the same people over several years. And then there should be a program that is so transparent that if others get into it, they can read about the teaching programs, and quickly take on a role"* 5.1.5 Willingness to work extra: *"interdisciplinarity is very vulnerable. Because it is very dependent on teachers who are willing to work a little extra for it, it takes some time to form new plans where you integrate different subjects"* 5.1.4 Sustaining a personal connection with nature, going on longer private tours.
	Annette	5.1.5 Time (also in relation to 5.1.1) - 5.1.1 when she started, she had fewer students	5.1.2 / 5.1.3 / (5.1.4) Discovering approaches through research and trying them out in TE - partnership with former Teacher candidate and her students, storyline - *"The best thing I have done, ever",* - *"the 5th-grade school in Portland, in the United States"*

Table Data Analysis: Teacher education and the nurture of care for nature

		- 5.1.1 feels like *"we are pushed and pulled in all directions"* and sees this as a reason why nobody does what they believe in, reports that this is an issue she discussed with a colleague who also experiences this - 5.1.5 sees this also connected to money: *"Time is very important and time is connected to money of course. Money for the, how the university spend their money, organize their people."* - 5.1.5 time is needed to think deep for some, otherwise you can just scratch the surface and she feels like that is what's happening in teacher training 5.1.1 curriculum (relates back to 5.1.5) 5.1.1/ 5.1.5 *"So many things to cover in the in the curriculums"* 5.1.1 In TE for school specifically: knowledge focus 5.1.4 / 5.1.5 student attitudes, studies don't seem to be a priority: work, meet friends → sees this connected to a societal lack of thinking deep and our disconnection with nature, 5.1.4 Personal relation and approach *"They [the teacher educators] must be shown the diversity and then they can choose their way. But it's obvious that we can never be objective, and that's why I always tell my students, these are the opportunities, and this is my approach."*	5.1.3 Colleagues: *"it's very good to have colleagues that [...] well, they're on the same planet. They might be different, but on the same planet."* 5.1.1 Curriculum: good curriculum, core curriculum, overarching topics 5.1.2 *"Well, this is where we stretch the curriculum [laughs]. We interpret it in a way so that we can do it."* - Goodlad's model is helpful here to find the opportunities - Has already done this in 97 on the backdrop of the old curriculum 5.1.4 *"nature offers the opportunity to be slow"* 5.1.4 Current events in the world - Climate, war - people are concerned on every level
School	Karin	5.1.5/ (5.1.1) "Time allocation": *"if we are eaten up by teaching time in the various subjects, then we have to go in, and then we have to choose, what is it that we choose to spend our time on when it comes to teaching?"* - *"I think you have to get together to learn something and to take care of this repeated experience with nature, through nature, it takes some time."* 5.1.1/ 5.1.2 "teacher educators professional background": competencies, values and experiences (school, private friluftsliv: *"I think there is a link between teacher educators' competence, both and experience from school eh and private friluftsliv"* - Teachers will see possibilities according to their professional background → interpretation and prioritization based on values: *"I who experience that I see the opportunities for nature and outdoor life in many places, I will then prioritize it. While another teacher who may have a different academic background then, or a different type of theoretical positioning, or a practical positioning, would make other choices. [...] then that connection between time allocation and teacher competence is absolutely crucial because we are asked to prioritize. And the teaching profession is a value-oriented profession, which means that here too it becomes value-based."* 5.1.2/ (5.1.5) *it's about our competence, both my, education and my experience from school and my private type of outdoor life. It is related very much to the local surroundings. So, then time allocation is not necessarily an obstacle. While if you are used to going far over mountains to call it friluftsliv, then the number of hours is an obstacle because then it takes so much of how you teach.*	5.1.5 Time → 5.1.2 because it is a choice made based on values: *"Time is both a problem and possibility. So, it has two sides, right. So, because it is a valuechoice for my colleague who thinks it is raining and then does not want to, does not then feel safe to go out, he does not know how to get dressed to take children and young people, the teacher students [...], respond to the weather outside. Then it becomes clearly crucial [...]. For the choice is outside or inside, I choose one or the other way."* 5.1.2 Her own competence: *"Yes it is education. That is my competence then. It's my learning style that makes me think it's important."* 5.1.4 *"And then there is local knowledge. For nature, [...] is both places and culture and surroundings and materiality as it were, [...] there are more things to nature."* 5.1.3 Colleagues: *"I think it's also a bit about who you collaborate with, how they understand their competence as a teacher and teacher role and their subjects. And how they understand nature as part of it. And it is incredibly important who you work with. Now, I am lucky to work with teachers who have the same type of conviction as I have. Then it is easily won."* 5.1.5/(5.1.1?) Accessible gear: *"available equipment for students and for the teaching itself. So that you can bring all students with you, regardless of*

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		(She does not experience this in her own case)	*their background and life situation. Can I have them with me? And they can experience being outside as positive."*
	Andreas	5.1.3 collaboration on an institutional level: Lack of cooperation between different departments (important in terms of showing how we can work interdisciplinary à care for nature must be a team effort), also leads to a lack of 5.1.5 time: *for example, related to the interdisciplinary as well, not true, we are an institution that works with physical education in isolation. I do not work with colleagues who have other teaching skills. I think this is a strength for institutions that may have other academic environments closer to and can show more in practice how to work perhaps interdisciplinary and multidisciplinary and project-oriented, in-depth oriented, outdoor school-oriented. So, these things here, I feel like I'm a little alone about it. There is also a reason why the time is not enough, and I know my limitations in relation to establishing that type of collaboration then. I think we will have to look at that eventually. We can't just say that you have to work interdisciplinary. We must also be able to show it through projects and perhaps initiative for the development work then.* 5.1.1 Big department with multiple agendas that go in different directions, can take away from an agenda such as creating 'care for nature': *"I experience that we are a very large professional environment in friluftsliv, but we have a lot of agendas that scream in different directions. And it might be a hindrance then to get focus for a type of project like this. So, it must be initiated in a way, and it means gathering around it. So, it probably has a bit of an inhibitory effect. Or it can be both ways then."* 5.1.5 / 5.1.2 There is only time for moderate development if you don't want to burn out: *"often there is just enough time to prepare lessons [...] but preparing is not the same as developing"* 5.1.1 / 5.1.5 Lack of incentives in terms of project funds from an institutional level, department, level of authority:*"I may miss more incentives to be in this type of development. [...] it should also be [...] prioritized in terms of development funds and project funds and things like that."* (4.1. 5 Culturally and socially coined lifestyle choices that create financial dependence à "hamster's wheel", experiences it is uncommon to take sabbaticals in Norway: *Most people find themselves in a financial situation very early on where working reduced or, for example, taking a year with something else becomes impossible. but it's a bit more about a culture that you kind of get socialized into I think.)* (He observes these pressures around him, although he made at least some different choices and received some financial support)	5.1.1 School curriculum: *"it is ambitious and challenges us, quite simply"* core values and perspectives → frees from focus on extreme tours/ adventure seeking / trend to entertain students in outdoor studies (often related to less sustainable, human-centred objectives): *"and then we may promote a development that is not in line with the time and the issues we really should address. [...] But when I work with teacher students, they are committed to a framework and curriculum. So, I feel a freedom in the sense that here I am supported well to do what I have to do, and I experience that the students are also well aware of it, and in a way accept these premises."* 5.1.3 Colleagues that think alike can help focus on an agenda like this*: I have talked a bit about the importance of colleagues who can enrich and, I think, you can be more or less lucky with colleagues in terms of having a culture for, and a driver in terms of developing these things to be concerned with these things. So, it will vary.* 5.1.2 inspiring literature: *"For me, reading literature is inspiring. I see that it is the field of outdoor life in the world that has come further on these things. I find a lot of inspiration that way."* 5.1.5 funding à acknowledgement: *"received some internal [financial] support, for the development work, [...], it's a bit about acknowledging what you are interested in and doing"* 5.1.3 Positive dynamic with students (important to get feedback from the students that they experience it as important, relevant and meaningful): *Otherwise, I think that for my own part, resonance with the students, that is, that I get a type of feedback from the students that this is important, this is relevant and they experience it as meaningful. These things are, after all, very supporting. The dynamics there are very decisive, of course, that it resonates well.* (5.1.4 slow friluftsliv) 5.1.4 current events will eventually force a change 5.1.5 financial restrictions: *"it is often a bit paradoxical that there must be financial, perhaps, restrictions for us to actually make the changes we should have made on an ideological basis at an earlier time."*

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4.2 POSITION (values on the basis of experience)						
Question		4. nature and friluftsliv	5. Importance of nature in education	6. Care for nature	7 A. perceived curriculum and B. other sections	10. *objective*
Kindergarten	Jens	c. nature as recreational arena for physical activities N is almost everything that is not developed by humans FL is time spent in nature (any variety of actions that include activities and rest)	Very important a. Relevant because trips in nature are common in Norwegian kindergartens a. teachers have to make different experiences in FL to be able to work with it when working f. There lies an intrinsic value in Friluftsliv	d. "Sporløs ferdsel», leaving no trace, not destroying nature as expressing care for nature, also connected to love for nature	A d. almost the same though leaving absolutely no trace would be different as this definition includes foraging, additionally balance of taking only what you need without destroying too much B d. sustainable development b. / e. learning areas: Body, movement, food and health (b), Nature, environment and technology (e) a. friluftsliv	a. / d. Students should: - understand the agenda of sustainable development - be able to understand and explain that the way they behave in nature can have an impact on it - gain knowledge on these issues, also concerning the details on why
	Simon	b. Part of growing up and professional career, f. Connected to something infinite that was there before me and will be there after me f. Likes the contrasts in nature and friluftsliv, something that changes in connection with the times in the year e. Single places have more importance than others, has become fond of some places that he likes to return to, both private and professional a. Likes to take students to places that he has a good relationship to	Important perspective, a. Time-dependent, privilege to observe development over time a. Often sees development in practical contexts when on tour	d. relates to respect and attention towards nature when outside for having a low ecological impact kindergarten context: learning areas with gapahuk or fireplace for gathering; discussing necessity, reuse, maintenance or building down, allowance from owner	A d. Terms 'Sustainable development' and 'care for nature' have a lot in common a. / d. Relates to small actions and teacher as a role model: ways of commuting, prioritizing local places, using and preparing local foods a. / e. Relates to feelings: *"visiting areas repeatedly and let[ing] them be good places for children where they get time for play and exploration and can experience a love or a joy of being in the places and help build an identity for the places"* B a. / b. interdisciplinarity, areas that relate to friluftsliv and culture, being physically active and developing motorics	Educational process that leads students to a. develop critical thinking related to nature conversation d. internalize UN's SDGs as their own values and follow them

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	Annette	d. Nature with a big N, Nature is everything, is earth, Humans are nature, born from nature, and nature is in our bodies e. "the deep connection with nature has been there all my life" (5.1.4) d. Refers to James Lovelock, Gaia-Hypothesis b. Friluftsliv and being in nature is related to family and growing up e. Considers herself the philosophizing type who could just lie down in the fields and just be	Of course, very important a. "bring the [sic] learning outside not just in nature but also in cultured to learn where life is, not just learn it inside the classroom and in books" (also a.) But the reality is different	d./e. *" nature as part of me, like Arne Næss is saying with the ecological self, [...] I identify with nature so when I do that, I will take care of nature"* Leads to *"care, and respect, and responsibility, and let me also say love here. Because you appreciate the beauty about your nature"* b. Sami people: understand the ecology or chain of life (weather → reindeer → people) human as dependent on nature	A d. / b. Resonates, sees the part of living in harmony as addition to what she said about sami perspective e. Understands connectedness to nature as main part in terms of care for nature: - *"Care, harmony and connectedness, I think they belong together"* - She thinks this should be placed in focus more - *"look at nature from the inside "*→camera - relational understanding of human-nature connection - this is something she is currently exploring B a. Tverfagelige temaer (good meeting btw. Humans, culture, nature) → not very clear in the curriculum because separated in different chapters a. in-depth learning	a. Help teacher candidates develop so they can help children develop: *"teachers have to feel and think and do the same things to know themselves so that they can help pupils to know themselves"*

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School	Karin	Wide understanding of nature, everything is nature, a. Important to identify concrete places for teachers b. recreational: *"I think we have a definition in Norway that somehow bases friluftsliv as something that is for leisure. I think that's a little troublesome when you go into school. So, there I mean you have to contextualize it or base it within the school framework.* a. educational: *And there friluftsliv is [...] interdisciplinary in itself, both in terms of knowledge and practice and attitudes and values. But it is also an opportunity to work across different professional disciplines in school.* b. FL private: family and friend based, close to home, no specific activities	Very, very important a. Learning and development happen in relation to something, e.g. nature	a. Relates it to Environmental edu. e. Swedish context: relation between humans and more-than-humans as important for taking care of nature and humans - Not just eco-centric but something in between - More than sustainability or environmental protection a. Educating children as participants in a community and the world, and to live good lives in this world a. Care for nature is created in an interplay between students, teacher, nature (from part competencies)	A a. Cognitive, anthropocentric perspective, sees human as cognitive being, not acting and embodied relational being a./ e. Missing relational and bodily terms B a. core values: The joy of creating, engagement and the urge to explore, Identity and cultural diversity, b. core value democracy and participation a. principles for education: interdisciplinary themes	a. Develop competences to take children outside and help develop their care for nature *b. "educating children and young people both to participate in a society or in a world but also teaching them to live good lives in that world and that which one takes care of"*

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	Andreas	Simple, natural relationship with nature, relational: f. Responsibility, c. nature is giving (recreation, inspiration) f. Fascinated by dramatic views and exotic nature, b. / d. but friluftsliv is mostly in local environment Friluftsliv includes b. mastery of skills (modes of travel, orienteering), b. a social component a. slow activities like dwelling	d. Relevant as it relates to environmental and climate issues as the biggest questions of our time a. Friluftsliv has a pedagogical potential to bring humans into nature, develop love and care for it, become engaged and reflect value patterns	d. "det å bry seg" / care to do something = Active word that implies a kind of action	A a. PE perspective allows for bodily, holistic approach to developing respect for nature → Important if you "really want to touch people" f. both intrinsic and instrumental value of N and FL, but more focus on instrumentality: c. recreation b. Health a. Learning arena a. Awareness and willingness to protect nature is created through time and repetition, friluftsliv can only play part in this overarching prospect B New core-curriculum: a. in-depth learning a. Interdisciplinary topics a. Friluftsliv → nature experience, students' relationship with nature, also development of skill is important	d. Relates to one of the currently most important topics: natural basis for survival, climate and the environment d. *"here we touch on one of the biggest topics of our time which is about the natural basis, climate environment, and that there is such an educational perspective, there is perhaps nothing more important than to touch and engage pupils and students in a topic that deals with care for nature."* a. Interdisciplinary attention a. *"there is probably a danger of staying in this activity-oriented friluftsliv, or the social friluftsliv and maybe care for nature can then be lost [...] slow friluftsliv and getting nature experiences in the foreground. [...] and thinking more about how we actually prepare and facilitate so it is also central in what I do and not just something I take for granted.*

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4.2.2 POSITION (visions on the basis of experiences)		
Question		8. vision
Kindergarten	Jens	g. combination of experiences and development of skills in friluftsliv activities as well as reflections on sustainable development that can be transferred to the teacher candidates' future work situation: *"they [the teacher candidates] must feel the body, and they must have different experiences in friluftsliv, and they must also be able to use these experiences when they start working as kindergarten teachers"* and *"to get students to reflect on sustainable development and how they can, in a way, bring it into their own development, and not least, how they can manage to take it into their own work as kindergarten teachers."*
	Simon	g. practical, experiential learning in nature *"I am passionate about students gaining practical experiences of being out in nature, that this should be part of teacher education."* h. involving other teachers *"I also think that they should meet teachers who have competence in being outside, who enjoy being out and have places they feel safe in and can show the students"* h. involving students *"I think that the students, they should be allowed to get involved in what is going on in the planning, in the implementation, in the follow-up."* i./ g. involvement and casework *"So, a type of involvement, that the students can be active in the preparation and [...] a type of explorative learning, where they can work with cases more so than [...] with types of activities [...] for example, someone gets hurt on a trip, make a case where someone gets hurt and then think how we can solve this when you get into kindergarten or school. So, transferring to practice."* h. involving children on tours in TE à link between TE and profession *"what we also think about more and more is to involve children on trips in teacher education, [...] to see how the activities in teacher education are relevant in the profession. So, I think that's important."* g. / j. Reflexion (discourse competency, relating experiences to academic world and ECE context), linked to multi-/interdisciplinarity *"but it is also very important to enable the students [teacher candidates] to reflect on those experiences [...] And this is preferably across subjects, [...]"*
	Annette	c. / h. learning outside, nature and culture *"I think we should absolutely be more, bring the [sic] learning outside not just in nature but also in culture to learn where life is, not just learn it inside the classroom and in books, so that's eh, that's a vision, but the reality is quite different for me in my work and, but if I could choose, I would have done it quite differently [sic]."* combining friluftsliv, nature, storyline approach, stories as nature's language: *"add friluftsliv and nature with storyline [...] to live stories and make up stories and tell stories. Because I think the stories are an important thing connected to nature. In a way, I think that stories are nature's language."* (closer future: Week with future teacher students for school à 1-2 days outside, possibly trying out storyline) j. Interdisciplinarity, working holistically, easier in ECE-based teacher education: *"doing storyline outside, outdoor, best of all in nature, and also cross-disciplinary. I mean, holistic in the way that I don't, I don't like the things eh the way we are splitting up life in different subjects. So, what we are doing in math, maths and pedagogy now is one little tiny example of going across the subjects that we teach. So of course, it's much easier to do things like that in kindergarten teacher training"*
School	Karin	g. TE in nature, exemplification and situating in place *"The dream scenario is that all subjects in teacher education move out of the auditorium and out of the classroom, out of the special room and are in nature, as a way of exemplifying and maybe also situating their own discipline in place."* g. but not in the sense of pure outdoor teaching *"I do not think that the school is served by thinking that all teaching should be outside."* j. focus on all subjects in this context
	Andreas	j. / g. Friluftsliv as one part of a bigger whole educational agenda, j. *"I think that it is a shared responsibility for us as educators in relation to achieving such a type of vision where we train teachers who not only have knowledge and awareness of but who actually have a commitment to [nature]"* g. *"For me, it's more about sort of discussing and seeing the opportunities for students in the reality they come into."*

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4.3 INTEGRATION (areas of concequence)				
Question		9A. *Contents* and competencies	9B. Periods of time	9D. Others involved
Kindergarten	Jens	5.3.1 Nature, health and movement → experiences in nature: **tours** and activities are connected to this subject: *"the arena where you can develop it the most, that is when we are on different trips. Next week I'm going on a three-day winter trip. […] And then, we focus mostly on the students getting their own experiences of being on a trip and practising friluftsliv, even though in a way we do not focus so much on leaving no trace when the students are on a trip, that is what is always underpinning the trip."* 5.3.2 competencies on tour: *"what we focus a lot on it is that the students should be able to take care of themselves and be able to be comfortable and to avoid, for example, getting too wet and cold"* 5.3.3 being/dwelling in nature *"I find that just […] being in nature for such a long period of time, that leads to building a relationship to nature"* 5.3.1 Physical activity, (Nature and environment)	5.3.5 (-) *"We are not that much outside"*: 5 – 10 days each year, about 30 days in total	5.3.5 (+) Local and wider surroundings, but have to get out of the city → Usually reachable with local bus from the city: Forest, mountains, waterscapes and snow
	Simon	5.3.1 / 5.3.5 Tour planning and execution, local, restricted transport: *"We go, for instance, to an area that is in the school's local environment, a bay like a type of recreation area, right in the beach zone and there we are three days, and we give students training in safety around water with it to swim and that with rescuing and assessing the dangers around the area. […]"* - transportation, short distances (transport) - evaluation of surroundings and facilities for eg reuse - little gear - involving nature in teaching with low impact (e.g. maths, arts) - food → using local sources and home prepare 5.3.2 necessary competence: foraging, fishing, kanoing, tenting, safety around that → being able to take responsibility for the activity and children, reflexion: *They [the teacher candidates] have some practical experience to be able to take responsibility for children. And then they have also started to get a basic competence […] with the canoe, with setting out fishing nets, making a fire, setting up tents. So that they have the skills to be able to take responsibility for the activities. And then, I think in extension of that, there was a reflection on the activity […], where we ask a bit about sustainable goals that were achieved on the trip. And this is where they connect the experiences they have made to sustainable goals.*	5.3.3 Progression, developing basic skills before: *"We do this in the third year. So, in a bachelor's this is the last year. So, I think it fits there because by then they have gained experience"* 3rd-year: three-day tour	5.3.5 in local surroundings 5.3.4 *"landowner, in this case it was the friluftsliv council", "local museum nearby that has exhibitions of fishing gear […] and boats going back to at least the Viking Age and up to today"* 5.3.4 During practicum

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School	Annette	5.3.3 (+) Care for nature as value in her teaching: developing TE's own teaching values and attitudes (5.1.4 / a.): *"the wholeness in the world", developing "our heart or head and our hands, if you can say it in that way, your knowledge, your attitudes, your skills".* 5.3.3 / 5.3.2 (+) Pedagogical philosophy, developing a world view, human image, teacher personality and values 5.3.5 (-) *"in the position to bring students outdoor all the time"* *5.3.2 All our frameworks lately has [sic] been focused on knowledge and skills. So that's why I think it's very, very important to remind people of our attitudes, the approaches and values that always will be there behind the knowledge and the skills. You can't separate them.* introduction to pedagogical philosophy à values attitudes relating to play à values attitudes relating to being a leader à	5.3.4 **first year** second year third year	5.3.3 / 5.3.4 (-) Mostly auditorium
	Karin	5.3.1 nature experience/ friluftsliv *"nature experience"*, both in terms of *"practical skills and theoretical knowledge"* as well as *"attitudes and values as part of their knowledge", "is created [...] in different places in nature at different seasons"* concludes → *"then I think we must include a practical part connected to the friluftsliv in different places"* - tours *"four-day bike ride, [...] four days winter trip in the woods, making snow trips"* - *"ice-bathing"* - *"building [and] developing outdoor classrooms"* 5.3.3 pedagogical approach: *largely inductive [...] exploratory, problem-based teaching* 5.3.2 / 5.3.5 understanding that nature is not only in remote, faraway places but that nature is more than that 5.3.3 building a relation through and to nature: *They must have built up some kind of relationship through and for nature that they can take with them further, right?*	5.3.3 Recurrent/repeatedly throughout the year 5.3.3 / 5.3.4 *"50 percent of the education takes place outside"*	5.3.5 - during different times of the year and in different places, however with a focus on continuity and local areas - *"lake right behind" the institution, "maybe two kilometres to walk"* - *"outdoor classroom which is right behind the university"* - *"Nearby mountain and river areas", "areas that are all within an hour and a half drive"*

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	Andreas	5.3.1 / 5.3.2 *"sustainable friluftsliv, sustainable modes of travel in nature, we talk about nature's vulnerability, we talk about leaving nothing but footprints"* 5.3.3 / 5.3.5 *"restrict all forms of transportation"*, important to be able to *"identify, see, experience the richness of local destinations"* 5.3.2 Becoming aware that there is vulnerable nature right underneath the living room window: *I have become more aware that we should use the nature close to nature, so we try to limit all forms of transport and in that way it becomes important to identify, see, experience the richness in the local surroundings. Because I think it is important in relation to building a relationship with nature, that you actually become aware that you have vulnerable nature right outside the door, that it is not something that is only on Svalbard or Antarctic Arctic.* 5.3.3 *"make active choices"*, e.g. to *"leave nothing but footprints"* 5.3.2 Not much competence needed: - identify what is alive and what is dead in nature, - basic skills in day trips, overnight trips, does not have to be very craving as they relate to leaving no trace - reflection for in-depth learning	5.3.3 *"slow progression"*, repetition, differences competence required, in winter tours between February and beginning of April. *"I am very aware of when I make trips this year, and how long the trips this year"* Hopefully integrated in teaching Potential for more direct addressing	5.3.5 Local nature, vulnerable nature, nature reserves, natural areas with varying degrees of protection, urban nature, 5.3.4 Cooperations with other human partners only in the sense of internships (DNT, Schools, kindergartens, FL organisations, toursims)

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4.4 REALISATION (concrete choices made and actions taken) E/R – activity, evaluation			
Question		9c. Activity/methods	14. Necessary steps
Kindergarten	Jens	5.4.3 trips throughout the year *"we have trips throughout the year." "And [...] we think that [...] the students in the course of three years should be on a trip both in the autumn and winter and experience slightly different natural environments."* 5.4.2 *"to learn different, for example, different ways to make an emergency bivouac in the snow, we will focus on different forms of housing out in the winter and all that then is about being able to feel good while they are out for a long time.*	5.4.4 More time for teaching in nature: *"Then we need even more time [laughs]. For [...] if you were to make it even more optimal then that would be what has the greatest significance."* but that is *"wishful thinking"* 5.4.3 potential: going on self-organised student tours: *Yes, I think, maybe, that we could have tried to an even greater extent to give the students tasks where they have to do something, and then perhaps, reflect on certain things afterwards. We could have done a little more of that.* 5.4.4 *"This is the most realistic because we do not experience being allocated more resources; no, we do not experience that."*
	Simon	5.4.3 Planning, executing, reflecting tour. Working explorative and practical on solving a problem, developing a case: *"they get some guidelines, it should be three days, there should be three subjects, for example, and there should be that age group, and then so and so many children. And then the students work in groups to prepare their own type of case, so they work with the children when they come [...] and then they report on this afterwards in a text.* 5.4.4/ 5.4.1 writing academic text, connecting experience to sustainable development *"they are given the task of writing an academic text, where they thematize sustainability on tour."* 5.4.2 / 5.4.1 developing competencies, ex. *So, when they paddle out, they have to take it [the fishing net] up from the lake, and then paddle in, and then they have to take the fish out of the net. This is part of experiential learning. So, they [...] are invited and they are allowed to take responsibility for the children and do those activities. And then they make bonfires and fry the fish on the fire. So being able to prepare the food yourself, being able to use food that is harvested locally. Don't have to buy the food. We picked it up at the spot. So, these were just a few moments then to show how we think both sustainably and show care for nature.*	5.4.3 Brave teachers that dear to invite the unexpected and involve the students (5.4.4 All other factors: - acknowledgement - time to work through processes with students) → see 4.1 (also mentioned self-organised tours, see 4.1)

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	Annette	5.4.2 forming an attitude / values - values as they relate to education and learning and being a human *"What is the meaning of being a teacher? What kind of teacher do you want to be? […] most important is maybe the attitudes or the values that we have to always discuss the values and. And then you connect values to what is the meaning behind education, behind learning, behind being a human and things like that"* - *I'm starting from inside. What do we think? What do we feel? What do we do, and what's the meaning of life? Because that's the core question for anyone but especially for teachers who's [sic] going to help young children to find their way in life. I think that's some very important question […] and then you add the next layer, which is my body, my social way of being, and then you add another layer, which is me as a human and me meeting other human beings, and in a meeting with nature and cultures.* - so starting from inside (feelings, thoughts and actions), next level body, social way of being, then another layer: me as human in meeting with other humans and nature 5.4.3 Using the arts, drama, poetry, songs, music 5.4.3 storyline - tell and show, introducing with passion and emotion - done this with students in kindergarten (exception) - in TE for school has not done it yet, but ambition (she plans it and then they go through it together) 5.4.3 near future *"I hope for the next half year with my students, together with my colleagues in Norwegian and mathematics. So that we can make a very different year, hopefully based on storyline, story making storytelling, story approaching, and that we can be outside"* 5.4.3 teaching a focus course in ECE teacher education by employing action research, involvement: *"we did the whole […] course like action research, participatory […] So, the partnership of teachers and students, that's an important way to go, to do this together with the students. So, this is what I planned for next term. I hope we can make it." ; "we learn from each other"*	5.4.3 / 5.4.4 Combination of time and being brave: 5.4.3 being brave: *"As I'm getting old, I get more brave, because I don't care so much [laughs], because I know what I am and I know what I believe in, and I know that I can argue for my choices."* 5.4.4 conclusion: *"So what has to be done is to have the framework, have the colleagues, have the dedication and time and be brave together,* 5.4.3 *and do it with the students, not for the students."* 5.4.1 working with the core-curriculua *"we are supposed to read them, analyse them, interpret them and realize them in our own local way, so our room for action is quite big."* - *"Every national framework has a core-curriculum, the fundamentals. So, I always go to the fundamentals, because then there I can find whatever I want. […], I think that's the most important thing. But that's also the part that teachers don't read. They go straight to their subject. I'm a math teacher, so I have to, to focus on the maths parts."*

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School	Karin	5.4.2 competence/activity: ice bathing, building a fireplace, warming stones and setting up a sweating hut, building up outdoor classrooms, tours (e.g., 4 days biking in mountain area, 4-day winter tour in the forest): *"For example, developing a camp or an outdoor classroom. That means finding material to make tripods and sitting benches. It means making a fireplace and food, kitchen area and then there is the development of how you can be here with children and young people when it is raining or snowing. Then there is also making different types of roof constructions depending on what equipment or materials are available. How do you organize such a type of outdoor classroom with respect to children and young people's learning, in respect to inclusion, and in respect to participation with the students' safety in mind."* 5.4.3 methods: inductive, explorative, problem-solving related to learning, participation and safety of students: *"My teaching methods are largely inductive like, it is exploratory in its approach. It's not that I instruct in just any way. And, I think maybe, you go in and have elements of instruction when you have to learn a little, for example, knots, [...] but it is to a large extent, 99 per cent, exploratory, problem-based teaching."*	There is no easy answer, because teaching is complex. Relates this to different conditions: 5.4.4 Different traditions on the level of disciplines and different practical experience with teaching in a school and outdoor context on a teacher level. ➔ Causes different level of feeling save in teaching outdoors and experiences of losing control of the teaching situation ➔ She relates that to the understanding of what learning is (she says that these things are not an issue for herself, she explains this by saying that learning is not something you can tick off on a list) 5.4.3 There needs to be research that says teacher educators must be exemplary and close to practise 5.4.3 *"We must [...] be sort of exemplary. If we believe that, as I believe, the core curriculum invites us to leave the classrooms, yes, then we must take our teacher students out of our auditoriums, [...] It doesn't just happen."*
	Andreas	4.4.3 Gentle/slow friluftsliv: *"So, what is obvious to mention is slow friluftsliv. The way I have worked with them so far is largely about didactics for nature experiences, nature presence, nature relationship, and how to facilitate it."* - Short distances, more time in local nature, reusing materials, keeping things simple and not very resource-intensive, time for reflection in terms of human-nature relationship 5.4.4 gear as institutional resource: *"Equipment is also such a classic theme, right, [...] And there, too, I am concerned with re-use, and that what we need, what we need in a school context is very little advanced, and we must manage with what we have. So, in that way it is grateful to work in school because there we are supposed to include everyone with the resources and conditions we have. So, for me it is very natural to think very simple and craving little resources."* 5.4.2 Addressing our paradox relationship with nature: *"It is paradoxical that we are in nature and then a forest machine has gone and cut down the whole area, right? Quite brutal, and then we go in next to it and then we say, we will try not to cut down living trees. Are you with me?."* 5.4.3 Co-creative exploratory process :*"I have been inspired by the students, because I sometimes give students assignments where they have to develop teaching, or they have to create a trip and then some created trips inspired by sustainability and the green shift, and in that they take it a lot longer than I do. So, I have to say that it is a way of working where we may co-create the new outdoor life for the future then. Where we can somehow, explore the possibilities. And then I think that, in a way, I'm a little preoccupied with it, but I still have a lot left to do."*	5.4.4 Other departments and subjects must step in and also do the work to meet the core values 5.4.5 It might be forced upon us through climate change and other crisis

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4.5 EVALUATION		
Question		11. evaluation
Kindergarten	Jens	5.5.1 *"No type of formal assessment"*, Student behaviour on tour → integrate the value of leaving no trace: *"we point out all the time, if we see behavior that is not without a trace, for example, and where the students do not think that they might leave too big traces. […] we try not to reprimand them but at least guide them, so that they may be able to see that the behaviour they have can affect nature in a negative way. Fortunately, we do not have to do that often."*
	Simon	5.5.1 Different levels: practical action and attitude → traceless, cleaning up, treatment of gear, (development of values is difficult to evaluate as it is a longer process) *"It is possible to assess, have they made interventions that were unnecessary? When they make a fire, do they just go to the nearest twigs to find sausage sticks or do they think of nature where they should thin out without it becoming very visible? …"*
	Annette	5.5.2 *"I think the close relationship and the dialogues is the, is the way."* → *"one-on-one talk"* 5.5.2 has been criticised for that, but believes: *"I can't know, evaluate without being professionally close"*
School	Karin	5.5.2 Change in student's understanding of nature, student learning and education: - Shows best when revisiting ex-students in practice à when new students are in practice - When they later take their students out with them, that means they have learnt something 5.5.1 Can also show in *"conversations and varying tasks"* 5.5.1 Working with cases by choice à if students choose to work on related to nature, friluftsliv, use of nature and problematize them: *the students were given five cases to choose from, some of which were cases that were linked to nature and outdoor life, and […] some that are connected to completely different things*
	Andreas	5.5.1 evaluation through involvement *"involve[ing] the students in thinking new with me, creating new practice together"* 5.5.2 more potential, feedback *"signal to the students that I want to be more ambitious in this area - give me feedback on how this can be developed"*, *"I'm kind of a fan of hurrying slowly. I like to preserve and keep what works, but at the same time I want to be in development. But that just means, for my own part, not to get burned out and tired at work."*

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OTHER		
		15. additional information
Kindergarten	Jens	-
	Simon	5.1.4 Tour joy: It is important to take time to foster and maintain one's own joy and taking good care of one's self and living after the values that we talked aboutà new enthusiasm, Easier to teach these things if they are true for yourself
	Annette	5.1.4 Self-care as important aspect of care for other: *"cross my own boundaries like with take care for nature, then you should take for the care for the nature in your own body as well. Eat well, and sleep well, and exercise well, and not work too much"* Connection between resilience and sustainability: Resilience is important to sustain life and this can be learned from nature as well, life can be tough Initiative, creativity and people, leaders who say yes to these things
School	Karin	-
	Andreas	-